

**THE WRITINGS ON  
PREVENTIVE MEDICINE  
AND PUBLIC HEALTH**

**VOLUME III  
(SUPPLEMENT)**

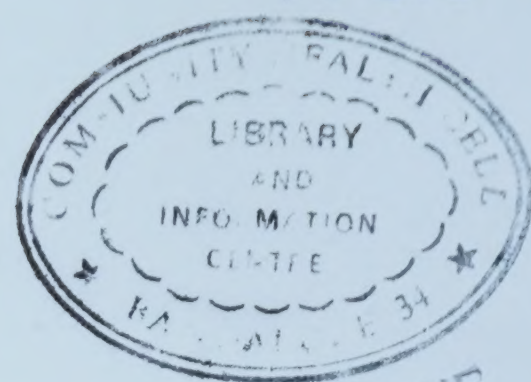
**BY  
DR. N.S DEODHAR**

**2009**



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# THE WRITINGS ON PREVENTIVE MEDICINE AND PUBLIC HEALTH

## VOLUME III {SUPPLEMENT}

BY

DR. N.S. DEODHAR

First Edition: January 2009.



***Compiled by:***

**Dr. N. S. Deodhar**, M.S. (Surg), D.P.H. (AFMC), Dr. Hy. (Bom).  
 Consultant in Health Sciences, Services, Management and Research.  
 Member, Advisory Academic Council, Public Health Foundation of India.  
 Hon. Member, and Ex-President, Indian Public Health Association.  
 Hon. Member, Indian Association of Preventive and Social Medicine.  
 Hon. Member, International Epidemiological Association.  
 Editor, Journal of Public Health Policy, USA.  
 Ex-OSD (1), Ministry of Health and Family Welfare, Government of India, New Delhi.  
 Ex-Director, All India Institute of Hygiene and Public Health, Calcutta.  
 Ex-President, Indian Society of Health Administrators.  
 Ex-Member, National Commission on Population.  
 Ex-Member, Many Committees, etc., of Planning Commission, Govt. of India.  
 Ex-Member, Independent Commission on Health in India.  
 Ex-Trustee, Gandhi Memorial Leprosy Foundation, Wardha; Indian Institute of  
 Education, Pune; Mahabank Agriculture Research and Rural Development.  
 Ex-Council Member for SEA, International Epidemiological Association.  
 Ex-Member, Advisory Committee on Health Research for SEA Region, WHO, New Delhi.  
 Ex-Consultant, WHO, UNICEF, USAID, etc.

***Published by:***

**Dr. N.S. Deodhar**,  
 20, Pushpak Park, Baner Road,  
 Aundh, Pune - 411007

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## PREFACE

After publication of first two volumes of this compilation, there were further writings mostly as a result of requests from important organizations and persons. The nature of these new papers was such that I felt it worthwhile to bring out III Volume of compilation. Some of the early writings which were left out were added. I came across my note written in 1973 on Delivery Systems in Communicable Disease Control and Eradication Programme — Some Problems of Research for a Future Set-up. I was surprised and distressed because that note was still valid. My two publications: Epidemic Polyuria in Man caused by a *Phycomycetous* fungus, and An Epidemic of “Polyuria and Polydipsia Syndrome”, Epidemiology of Poona Disease, were included in Volume I. However, two unpublished documents throw light on my early thinking and inferences. These are included now. I was also impelled for III volume by the healthy response I got after release of the first two volumes of ‘The Writings in Public Health and Preventive Medicine’.

Papers written in Marathi were excluded from the earlier compilation because of the number. These include talks on radio and articles in news papers. Both have reflection on programme management and health system research. These are now included in this volume. I went on weeding my files and landed on a report by Dr. John. H. Bryant, USA. I was also reminded that he had arranged my talk in New York at PAHO on “Up-scaling of Micro- into Macro-Projects”. While I received international appreciation of my contributions to public health in the rare award of the Honorary Fellowship of the International Epidemiological Association; second Indian after late Dr. C.G. Pandit, I felt that some extracts from Bryant’s report would be sort of external and independent assessment of my work and thoughts on public health. I decided to make it a fitting ‘finale’ for III volume. He wrote what I said, but which I did not record. A recent award, by the Public Health Foundation of India, for Lifetime Contribution to Public Health; and 9<sup>th</sup> Ved Prakash Oration, NIHFV, are also added. With globalization public health is going to be very nonconforming. I visualize that by the year 2025, Primary Health Centres, especially curative care by PHC medical officer, may be redundant.

I acknowledge my indebtedness to (late) Dr J. K. Adranvala, Ex-Director of Public Health, Maharashtra, for much of my style and approach. My close association with (late) Dr. B.B. Dikshit, Ex-Director, All India Institute of Medical Sciences, New Delhi, and (late) Dr. C.G. Pandit, Ex-Director, Indian Council of Medical Research, New Delhi, has also influenced my mind tremendously in many ways. I am grateful to many of my friends who have directly or indirectly helped or encouraged me in my efforts for health development and promotion of practice of public health. My wife Smt. Suman has helped me in many many ways for which I am indeed indebted. I express my sincere thanks to my friends for encouraging and facilitating publication.

Pune, 19<sup>th</sup> December 2008.

Dr N. S. Deodhar



# PREFACE

The author of this book is a student of the history of the United States, and he has written it for the purpose of showing the progress of the country from the first settlement to the present time. He has tried to give a full and accurate account of the events which have shaped the nation, and to show the influence of the various factors which have entered into its development. He has also tried to give a full and accurate account of the progress of the country from the first settlement to the present time. He has tried to give a full and accurate account of the events which have shaped the nation, and to show the influence of the various factors which have entered into its development.

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#### **Publication not included**

These are the same as for Volume I and II, except 'Disruption of abdominal wounds, which has been included in this volume,

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# मराठी लेखन विभाग

## (Marathi Writings)

(विस्तारीत संदर्भ परिशिष्ट अ ग्रंथ २ मध्ये पहा)  
(For Extended References see Annexure A volume II)







## १

## देवी

देवी हा जीवाणूपासून होणारा एक सांसर्गिक रोग आहे. या रोगांत प्रारंभी एकाएकी ताप चढतो. सर्वांगाला तीव्र वेदना होतात. त्यानंतर सामान्यपणे दुसऱ्या ते पाचव्या दिवशी [वहुधा तिसऱ्याच दिवशी] त्वचेवर एका विशिष्ट प्रकारची उगवण दिसून येते. प्रथम पुरळ नंतर लसपीटिका, नंतर पूंपीटिका या क्रमाक्रमाने ती वाढता जाऊन शेवटी तिच्यावर खपल्या धरतात. खपल्या पडल्यानंतर त्यांच्या जागीं बहुधा कायम स्वरूपाचे व्रण राहतात.

**रोगाचे प्रमाण:** एकेकाळी देवी हा रोग जगभर सर्वत्र आढळून येत असे. आज मात्र या रोगाला यशस्वीपणे प्रतिबंध करण्यात वऱ्याच पुढारलेल्या राष्ट्रांना यश आले आहे. यावावत भारताची परिस्थिती मात्र मुळीच समाधानकारक नाही. १९५४ साली देवीच्या संवधाने जी आंकडेवारी प्रसिध्द झाली ती खालीलप्रमाणे:

	लागण	मृत्युसंख्या
जग	१०००००	१५०००
भारत	४६०००	११०००

वरील आंकडेवारीकडे केवळ दृष्टिक्षेप केला तरीही देवी हा रोग भारतात केवढ्या प्रचंड प्रमाणांत पाय रोवून वसला आहे यांची कल्पना येईल. खेड्यापाड्यांत या रोगाचा प्रसार आहेच. परंतु कलकत्ता, दिल्ली, मुंबई यांसारख्या शहरांतही फार मोठ्या प्रमाणात हा देवीचा रोग प्रादुर्भूत होत असतो.

**कारणमीमांसा [Aetiology]:** हवामान- जानेवारी ते जून या महिन्यांत देवीच्या रोगाचा प्रसार जास्त होत असतो. उन्हाळ्यात या रोगाचे प्रमाण वाढतं आणि पावसाळा सुरू झाल्यावर तो कमी होते. स्त्रीपुरुष, वाल-वृद्ध या सर्वांमध्ये या रोगाचा सारखाच प्रादुर्भाव होतो.

**नैसर्गिक जीवनक्रम [Natural history]:** निसर्गतः हा रोग फक्त माणसांतच आढळतो. या रोगाचे जीवाणु श्वासमार्गाटे मानवी शरीरात प्रवेश करतात. श्वासमार्गाच्या श्लेष्म त्वचेतून जीवाणु रसवाहिन्यांत प्रवेश करतात.

तेथून ते नजीकच्या रसग्रंथीत काही काळ स्थिरावतात. या रसग्रंथीत त्यांची गुणित प्रमाणाने वाढ होते. वाढीनंतर [म्हणजे सुमारे १ ते २ दिवसांच्या काळात] हे जीवाणु रक्तात प्रवेश करतात [Primary viraemia]. तथापि हि स्थिती फारच थोडा वेळ टिकते. कारण त्या नंतर थोड्याच वेळात यकृत, प्लीहा, अस्थिमज्जा व फुफ्फुसातील केशवाहिन्या यामध्ये आढळणाऱ्या विशिष्ट जातीच्या पेशी [Phagocytes] या जीवाणूंना गिळंकृत करतात. तथापि यामुळे या जीवाणूंच्या वाढीला प्रतिबंध होत नाही. या पेशीच्या शरीरात त्यांची वाढ तशीच अखंड चालू राहते व काही काळानंतर हे जीवाणू पुन्हा एकदां रक्तात प्रवेश करतात [Secondary viraemia]. ही अवस्था सुमारे तीन दिवसांपर्यंत टिकते. या वेळी पूर्व लक्षणे दिसू लागतात. साधारणपणे देवीच्या जीवाणूंनी शरीरात प्रवेश केल्यापासून ते देवीची पूर्वलक्षणे दिसू लागेपर्यंत सुमारे वारा दिवसांचा कालावधी लागतो. या काळालाच अधिशयन काल [Incubation period] असे म्हणतात. सामान्यतः अधिशयन काळ १० ते १४ दिवसांचा असतो.

पूर्वलक्षणानंतर देवीचे जीवाणू त्वचा व ऊर्ध्व श्वासमार्गातील अंतरसत्वाचा या ठिकाणी आपले वास्तव्य करतात. प्रारंभापासून या अवस्थेला पोहोचेपर्यंत सुमारे १५ दिवसांचा कालावधी लागतो. या अवस्थेनंतर रक्तामध्ये देवीचे जीवाणू आढळून येत नाहीत. उलट या जीवाणूंचा प्रतिकार करणारी द्रव्ये - प्रतिकारद्रव्ये - रक्तात आढळून येऊं लागतात. तथापि या प्रतिकारद्रव्यांचा देवीच्या जीवाणूवर प्रभाव पडू शकत नाही. कारण या वेळी देवीचे जीवाणू त्वचेतील पेशींच्या शरीरात, या प्रतिकारद्रव्यापासून दूर, आणि म्हणूनच सुरक्षित असतात.

**देवीची लक्षणे :** रोगाच्या प्रारंभी थंडी वाजून ताप भरून येतो. हा ताप कित्येक वेळी १०६<sup>०</sup> ते १०७<sup>०</sup> इतका चढतो. डोके दुखू लागते. सर्वांगातून तीव्र वेदना होऊ लागतात आणि रोग्याला विलक्षण थकवा येतो. पाठ व कंवर विशेषतः जास्त दुखते. रोग्याचा चेहरा लालवुंद



दिसू लागतो. लहान मुलांचे वावतीत झटकं येणे, डोळ्यांवर झापड येणे, उलट्या होणे तर कित्येकदां शुध्द हंगणे यांमाग्यीं लक्षणे दिसून येतात. रोग्याची उलघाल व त्याच वगेवर त्यांचे मधूनमधून वरळणे चालू असते. या पूर्वलक्षणांच्या काळातच उदराच्या अधोभागावर व मांडयांच्या आंतील वाजूम एक विशिष्ट प्रकारचा पुरळ कांहीं रोग्यांमध्ये आढळून येतो. अशा रोग्यांमध्ये कित्येकदां अत्यंत तीव्र स्वरूपाचा आजार उद्भवतो. तिस-या व चौथ्या दिवशी प्रथम चेहे-यावर उगवण दिसू लागते. उगवण जितक्या लवकर दिसू लागते तितक्या प्रमाणांत ती वाढण्याची शक्यता असते. उगवणी वगेवरच तापाचे प्रमाण कमी होते आणि सर्वांगाच्या वेदना व डोकेदुखी यांचीही तीव्रता कमी होऊन रोग्याला थोडासा आराम वाटू लागतो. सर्व उगवण सामान्यपणे एकाच वेळी उद्भवते व काही थोड्याच वेळात या उगवणीचें रूपांतर पीटिकांमध्ये होते. या पीटिका प्रथम वरईच्या दाण्याएवढ्या असतात. त्यानंतर क्रमाक्रमाने त्यांचा आकार वाढत जाऊन सरतेशेवटी त्यांचा व्यास सुमारे दोन ते चार मिलिमीटर होतो. या पीटिका त्वचेच्या पृष्ठभागाखालून वर येतात आणि हाताला घडू आणि कठीण लागतात. सुमारे दोन ते तीन दिवसानंतर या पीटिकांचे लसपीटिकांत [लसिकांत] रूपांतर होते. प्रत्येक लसीका अनेक संपुटांची वनली असल्यामुळे टांचणीने टोचले तरीही ती पृष्ठभागासपाट होत नाही. सहाव्या ते सातव्या दिवशी या लसिकेच्या मध्यभागी एक वारीकसा खळगा पडतो. आठव्या दिवशी लसपीटिकेचे पूंपीटिकेत रूपांतर होते. या सुमारास पुन्हां एकदां ज्वराचें प्रमाण वाढते. त्यानंतर मात्र या पूंपीटिका हळूहळू सुकू लागतात आणि त्यांच्या जागी खपल्या धरू लागतात. सामान्यतः तीन ते चार आठवड्यानंतर सर्व खपल्या पडतात. पायाच्या आणि हातावरच्या खपल्या सर्वांत शेवटी पडतात. खपल्या जितक्या खोलवर धरलेल्या असतील तितक्या प्रमाणांत रोग्याच्या अंगावरील व्रण कायम राहण्याची शक्यता जास्त असते.

**देवीच्या पुरळांची वैशिष्ट्ये :** १. चेहरा आणि मनगट या दोन ठिकाणी देवीचा पुरळ सर्व प्रथम दिसत असल्या तरीही सामान्यतः सर्व शरीरावर पुरळ एकाच दिवशीं दिसू लागते. कांजिण्यासारखे पुन्हा पुन्हा पुरळ येण्याचा प्रकार देवींत आढळून येत नाही. शरीराच्या ज्या भागाचें जास्त घर्षण होतें. उदा. गुडघा, कोपर किंवा शरीराचा जो

भाग उघडा राहतो, उदा. हात, पाय या भागावर प्रामुख्याने हे पुरळ विपुलतेनें आढळत. २. या पुरळाच्या वाढीच्या अवस्था व त्यांना लागणारा काळ हाहि सामान्यतः एकच असतो. सर्व पीटिका वर्तुळाकार असतात एवढेच नव्हे तर सामान्यतः त्यांचा व्यासहि सागव्याच असतो. लसिका व पूंपीटिका अनेक संपुटांच्या वनलेल्या असतात. ३. जों जों शरीराच्या केंद्रविंदूपासून दूर जावें तों तों पुरळाचें प्रमाण वाढतें होत जाते. एकाच हाताच्या वावतींतहि दंडावरील येणाऱ्या पुरळापेक्षां हाताच्या पंजावरील पुरळांची संख्या जास्त असते. छाती, पोटा व पाठ या भागांवर पुरळ विरळ प्रमाणांत आढळून येतो. ४. या रोगात उठणारा पुरळ त्वचेच्या खोलवरच्या भागांतून वर येतो. त्यामुळेच तो कातडीच्या खालून वर वाढत आल्याप्रमाणे वाटतो. उलटपक्षी कांजिण्यांमध्ये तो त्वचेच्या पृष्ठभागावर असल्याप्रमाणे वाटतो.

**रोगाची स्वरूपे :** या रोगात प्रामुख्याने तीव्र आणि सौम्य असे प्रकार आढळून येतात. तथापि लक्षणांचा विचार केला असतां यात पुढील प्रकारची वेगवेगळी स्वरूपे आढळून येतात.

१. **रक्तस्राव होणाऱ्या देवी (Haemorrhagic small-pox):** यांतही दोन प्रकार आढळून येतात. (अ) या उपप्रकारात शरीरावर पुरळ उगवण्यापूर्वीच कातडीच्या आंत रक्तस्राव होऊन कातडी काळसर लाल रंगाची दिसू लागते. या प्रकारांत मृत्यु बहुधा अढळ असतो. या प्रकाराची सुरुवातहि अत्यंत तीव्र स्वरूपाची असते. त्यांत ज्वराचे प्रमाण आणि सर्वांगवेदना याहि नेहेमीच्या इतर प्रकारापेक्षा अधिक तीव्रपणे आढळून येतात. रोगी कित्येक वेळी वेशुद्धावस्थेतच असतो. रोगाचा नेहेमीचा पुरळ दिसू लागण्यापूर्वीच बहुधा रोग्याचा मृत्यु घडून येतो. देवी न काढलेल्या लोकपैकी काहीं लोकांमध्ये हा रोग प्रामुख्याने दिसून येतो. (आ) या उपप्रकारांत पूंपीटिका तयार झाल्यानंतर त्यामध्ये रक्तस्राव होऊं लागतो. यांत मृत्युसंख्येचे प्रमाण वरेच असते. तथापि ते वरील (अ) उपप्रकारापेक्षा कमी असते.

२. **संलग्न देवी (confluent small-pox):** हाहि प्रकार तीव्र स्वरूपातच मोडतो. यामध्ये पीटिका इतक्या दाटीदाटीने उगवतात की त्या एकमेकीशीं संलग्न होऊन जातात. या प्रकारांतहि मृत्युसंख्येचें प्रमाण वरेच असते.



३. **विरळ देवी (Discrete small-pox):** या प्रकारात पुरळ विरळ स्वरूपात आढळून येतो. या रोगाचे स्वरूप सौम्य असते आणि मृत्युसंख्येचे प्रमाणहि अत्यंत अल्प असते. खपल्या पडल्यानंतर कातडीवर गहणारे व्रणहि कालांतराने नष्ट होऊं लागतात.

४. **रूपांतरित देवी (Modified small-pox):** ज्यांच्या शरीरांत काहीं प्रमाणात प्रसरण शक्ती आहे अशा व्यक्तींमध्ये या रोगाचे एक वेगळेच अतिसौम्य स्वरूप आढळून येते. या स्वरूपात रोग्यांमध्ये ज्वर, सर्वांगवेदना यासारखी पूर्वलक्षणे अभावाने आढळतात. त्वचेवरील पुरळहि तुळक स्वरूपाचा असतो. कित्येकदा तर त्वचेवरील पीटिकांची संख्या आठ दहापेक्षा जास्त नसते. त्याच प्रमाणे लसिका पुंपीटिका या अवस्थांतून जाण्याऐजी त्यांचे थेट खपल्यांतच रूपांतर होत. या खपल्यांचा आकारहि लहान असतो. आणि त्या पडल्यावर गहणारे व्रण कालांतराने नाहीसे होतात. या रोगाच्या सौम्य स्वरूपामुळे कित्येकदा रोग्याची काळजीपूर्वक पाहणी न केल्यास डॉक्टरांचीही फसगत होण्याची शक्यता असते. देवीच्या प्रसारास प्रतिबंध करण्याच्या दृष्टीने मात्र या स्वरूपाला अनन्यसाधारण महत्व आहे. कारण या प्रकारचे रोगी अजाणतां समाजात सर्वत्र वावर करू शकतात. या रोग्याच्या आजाराचे स्वरूप सौम्य असले तरीहि त्यांच्यापासून इतरांना फार मोठा धोका असतो. कारण यांच्या संसर्गात येणाऱ्या व्यक्तींना वऱ्याच वेळेला तीव्र स्वरूपाच्या देवीहि येऊं शकतात. त्याचप्रमाणे या रोग्यांचा संसर्ग होणाऱ्या लोकांची संख्याहि इतर प्रकारच्या देवीपासून संसर्ग होणाऱ्या लोकांपेक्षा कितीतरी पटींनी जास्त असते.

**विशेष परीक्षा (Investigation):** देवीची लक्षणे ही इतकी स्पष्ट असतात की सामान्यतः देवीचा रोग ओळखण्यास इतर रोगांप्रमाणे प्रयोगशाळेची मदत घ्यावी लागत नाही. तथापि देवीची लक्षणे संदिग्ध असल्यास अथवा रूपांतरित देवीच्या रोग्यांमध्ये कित्येक वेळी प्रयोगशाळेची मदत मोलाची ठरते. यामाठी सहजपणे उपयोगी पडणारी व थोड्याशा अभ्यासाने वापरता येण्याजोगी अशी एक परिक्षण पद्धती आहे. तिचे स्वरूप थोडक्यात खालीलप्रमाणे आहे.

**प्रसरण परीक्षा (Smear test):** या परीक्षेचा उपयोग सर्व प्रकारच्या देवीच्या रोगांत करता येतो. तथापि देवीच्या प्रांभीच्या कालांत निदान निश्चित करण्याच्या दृष्टीने ही

परीक्षा फारच उपयुक्त ठरते. त्यासाठी सूक्ष्मदर्शकाशिवाय अन्य कोणत्याहि विशेष साधनांची आवश्यकता नसते. त्याचप्रमाणे या परीक्षेला साधारणतः  $\frac{1}{2}$  तास पुरेसा होतो. **पद्धति:** १. विशिष्ट प्रकाराने स्वच्छ केलेली एक काच घ्यावी. देवीच्या पीटिकेच्या तळाशी असलेल्या द्रवाचे त्यावर प्रसरण करावे. [हे द्रव घेण्यासाठी पीटिका प्रथम अल्कोहोल किंवा ॲसिटोनने स्वच्छ करावी. त्यानंतर धागदार चाकूने किंवा सुईने दोन काटकोन करणारे छेद घेऊन ती पीटिका फोडावी. नंतर निर्जंतुक कापसाच्या साहाय्याने त्यांतील द्रव टिपून घ्यावा. त्यानंतर पीटिकेच्या तळाला चाकूच्या किंवा सुईच्या टोकाने हळुवारपणे खरडून काढावे व नंतर चाकूवर आलेल्या द्रवाचे काचेवर प्रसरण करावे.] एका काचेवर रोग्याचा कमांक टाकावा. काच हवेत संपूर्णपणे वाळू घ्यावी. २. प्रसरणाचे रंजन (Staining of the smear): ही कांच प्रथम शुध्द मद्यार्क (Absolute Alcohol) व नंतर ईथरने धुवावी व नंतर पाशेन (Paschen) पद्धतीने काळजीपूर्वक रंगवावी. ३. त्यानंतर या काचेवरील प्रसरण उत्तम कृत्रिम प्रकाशांत व उत्तम सूक्ष्मदर्शकाखाली [X १०००] तपासावे. प्रसरणांत देवीचे जीवाणु असल्यास लालभडक रंगाचे लक्षावधी ठिपक्या ठिपक्यांसारखे दिसणारे [व कित्येकदां जोडीजोडीने आढळून येणारे] देवीचे जीवाणु सहजपणे दृष्टीला पडतात. ४. या प्रसरणांत देवीचे जीवाणु असल्यामुळे त्यांपासून प्रयोगशाळेतील लोकांना संसर्ग होऊ नये म्हणून त्यांची योग्य ती विल्हेवाट लावावी. [यासंबंधी जास्त माहिती पाहिजे असल्यास Indian Journal of Medical Science या मासिकांच्या जुलै १९५९च्या अंकातील लेखकांपैकीच एकाने लिहलेला लेख पाहावा]

**विशेष विकृति (Complications) :** कित्येक वेळा पुंपीटिकाच्या अवस्थेनंतर देवीच्या रोगांपाठोपाठच अन्य रोगजंतुहि शरीरावर हल्ला करतात. त्यामुळे गळवे, मुत्रपिंडविकार (Nephritis), स्वरयंत्रदाह, श्वासमार्गावरील अधोभागाला सूज येणे यांसारखे विकार उद्भवतात. कित्येक वेळा डोळ्यातील कांचेवरही व्रण उद्भवतात व त्यामुळे अंधत्व येण्याचीहि शक्यता असते. लहान मुलांमध्ये अतिसार आणि मध्यकर्णाचे विकारहि वऱ्याच वेळां उद्भवतात. तरूण आणि वृद्ध रोग्यात पक्षघात (Encephalitis), विविध मज्जातंतुदाह (Poly neuritis) यांसारखे विकार संभवतात.



**उपाय योजना :** प्रतिबंधक - याचा विचार करण्यापूर्वी देवीच्या रोगाचा थोडक्यात महत्वाचा व प्रतिबंधक उपायाशी संबंधित असा सारांश ध्यानात ठेवला पाहिजे. तो असा - संसर्ग कारण - देवीचे जीवाणु. मंचयक - मनुष्य प्राणी. संसर्गसाधन - श्वासद्रव, त्वचा व अंतस्त्वचा यावरील पुरळ, खपल्या, यांचप्रमाणे या सर्वांच्या मात्रिध्याने दूषित झालेले कपडे व इतर वस्तु. संसर्ग पद्धति १. रोग्याशी निकटचा संबंध २. रोग्याच्या जवळपासच्या दूषित हवेतून श्वासमार्गाने. ३. रोग्याच्या खपल्या पुरळ श्वासद्रव यांच्या संपर्कात आलेल्या दूषित झालेल्या वस्तुंद्वारे.

अधिशयन काल : ७ते २१ दिवस सामान्यतः १२ दिवस. संसर्ग काल : पूर्वलक्षणांपासून ते सर्व खपल्या पडेपर्यंतचा काल. सामान्यतः २ते ३ आठवडे. त्यांतहि रोगाच्या प्रारंभीच्या काही दिवसात संसर्गतेचे प्रमाण जास्त असते.

**प्रतिबंधक उपाय :** १. एखाद्या रोग्याला देवी झाल्या आहेत असा संशय आला तरी त्याचे वृत्त तावडतोव नजीकच्या आरोग्यधिकाऱ्यांना कळवावे. देवीचे वृत्त आरोग्यधिकाऱ्यांना कळवलेच पाहिजे असे डॉक्टर व वैद्य यांच्यावर कायदेशीर बंधन आहे. २. देवीच्या रोग्याला संसर्गजन्य रुग्णालयात तावडतोव दाखल करावे. देवीचा रोगी संसर्गजन्य रुग्णालयात दाखल होण्यास तयार नसेल तर त्यावर कायदेशीर उपाय योजना करून त्याला संसर्ग जन्य रुग्णालयात दाखल करून घेता येते. ३. रोग्याची शुश्रूपा करणाऱ्या एक दोन नातेवाईकांव्यतिरिक्त इतर कोणालाही रोग्याजवळ जाऊ देऊ नये. शुश्रूपा करणाऱ्या नातेवाईकांना व इतरहि रोग्याच्या संवंधात आलेल्या

व्यक्तींना तावडतोव देवी लस टोचावी. ४. रोग्याचे कपडे आणि भांडी उकळून घ्यावीत. ५. रोगनिदान होण्यापूर्वी रोग्याच्या संसर्गात आलेल्या सर्व लोकांना देवीची लस टोचावी आणि त्यांचे पुढील सोळा दिवसांपर्यंत निरीक्षण करीत राहावे. ६. दाखल झालेल्या रोग्याच्या संसर्गाचे उगमस्थान शोधून काढण्याचा प्रयत्न करावा. ७. शरीरावरील सर्व खपल्या पडेपर्यंत रोग्याला हॉस्पिटलमध्येच ठेवावे. त्याचप्रमाणे पडलेल्या सर्व खपल्या एकत्र करून जाळून टाकाव्यात. **देवी निर्मूलनाचे प्रयत्न :** देवीची लस वारंवार टोचून घेणे हा निश्चित स्वरूपाचा प्रतिबंधक उपाय आहे. रोग्याच्या अधिशयन कालाच्या प्रारंभी देखील देवीची लस टोचून घेतल्यास देवीचा रोग होण्याचा संभव कमी होतो ही गोष्ट अवश्य ध्यानात ठेवावी. यासंबंधी सविस्तर माहिती पुढील लेखांकात देण्याचा मनोदय असल्याने यापेक्षा जास्त येथे लिहिता येत नाही

**विशिष्ट उपाययोजना :** देवीच्या रोगासाठी विशिष्ट अशी कोणतीहि परिणामकारक औपधयोजना नाही. त्यामुळे सर्व उपचार घेऊनदेखील रोग अन्व जंतूंचा उपद्रव होऊ न देण्याचा प्रयत्न करण्याकडेच असतो. डोळे, नाक आणि मुख यांच्या संवंधाने विशेष काळजी घ्यावी लागते. त्यासाठी पेनिसिलीन, अँकोमायसिन आदि औपधांचा विशेष उपयोग होतो

**जलशोष :** मुखातील व्रणामुळे कित्येकदा देवीच्या रोग्यांना अन्न व पाणी घेणे अशक्य होऊन वसते. त्यामुळे जलशोष तसेच शरीरातील विविध क्षारांचा असमतोल यासारख्या विकृती निर्माण होतात. त्यांवरहि योग्य ती उपाययोजना करणे आवश्यक असते.



## २

## देवी निर्मूलन सप्ताह

देवी हा रोग माहित नसलेली व्यक्ती विरलीच. देवीचा प्रादुर्भाव नसलेले एकहि खेडे अगर शहर भारतांत सापडणार नाही. वास्तविक देवीची लस टोचून घेणे हा या रोगावर रामवाण उपाय! जगातील देवीच्या लागणीपैकी निम्मी लागण आपल्या भारतात होते. जगात देवीने मृत्यु पावणाऱ्यांच्या संख्येपैकी २/३ मृत्यु एकट्या भारतात होतात. एक काळ असा होता की ज्या वेळी सर्व जगभर देवी हा रोग आढळून येत असे. आज मात्र रशिया, अमेरिका, युरोप, ऑस्टेलिया, मेक्सिको, पेरू सारख्या कित्येक देशांनी या रोगाची संपूर्ण हकालपट्टी केली आहे. भारतात मात्र कोलकत्ता, मुंबई, दिल्ली यांसारख्या सुधारलेल्या शहरातहि देवीची लागण इतर ठिकाणाच्यापेक्षा जास्त प्रमाणात आढळते. हिक्तापाप्रमाणेच आपल्याला देवीच्या मोठ्या प्रश्नाला तोंड द्यावयाचे आहे. दुर्दैवाने भारतात अशिक्षितांचे प्रमाण फार आहे. हा रोग देवीच्या कोपामुळे होतो, त्यावर औषधोपचार केल्याने तो अधिकच वळावतो वगैरे भ्रामक समजुती आजही भारतात प्रचलित आहेत. अज्ञानाच्या जोडीला आळशीपणा हाहि आपल्या स्वभावात घर करून वसला आहे. त्यामुळे देवीची लस टोचून घेण्याचे कामहि कमालीच्या मंदपणे चालू असते.

भारतसरकारने देवी निर्मूलन करण्याची राष्ट्रीय योजना गेल्यावर्षी ऑक्टोबर महिन्यांत हाती घेतली. कार्यक्षमतेच्या दृष्टीने महाराष्ट्रात ही योजना प्रथम विदर्भ, मराठवाडा, तसेच जळगाव व धुळे या जिल्ह्यांत चालू करण्यात आली. येत्या नोव्हेंबर १९६३ पासून ती पश्चिम महाराष्ट्रात चालू होईल. या योजनेचा यशस्वी प्रचार व्हावा यासाठी २५ सप्टेंबर १९६३ पासून १ ऑक्टोबर पर्यंत एक आठवडा देवीनिर्मूलन सप्ताह म्हणून सर्व देशभर पाळला जाणार आहे. या सप्ताहात जास्तीत जास्त लोकांना देवीची लस टोचून घेण्याकरिता प्रवृत्त करण्याच्या दृष्टीने लोकजागृती झाली पाहिजे. ज्यांना देवी काढून एक वर्षापेक्षा अधिक काळ झाला आहे अशा सर्व स्त्री पुरुष, मुलामुलींनी देवी टोचून घेणे आवश्यक आहे. महाराष्ट्रातील जवळ जवळ ४ कोटी जनतेला देवी टोचण्याकरीता जरूर तेवढे देवीडॉक्टर व आरोग्य-

निरीक्षक वगैरे नेमण्यांत येत आहेत. विशेष म्हणजे या कार्यक्रमाकरिता रशियाने अतिशय प्रभावी अशी लस (फ्रीजड्राइड) देणगी म्हणून दिलेली आहे.

**सांसर्गिक रोग** देवी हा एक सांसर्गिक रोग आहे. तो एक प्रकारच्या अति सूक्ष्म जंतूपासून होतो. वर्षाच्या प्रारंभीचे सहा महिने जानेवारी ते जून या रोगाचा विशेष भर असतो. पावसाळा सुरू झाला की त्याची पीछेहाट सुरू होते आणि तो संपुष्टात येतो. निसर्गाने या रोगाचा शाप फक्त माणसाच्या वाट्यालाच दिलेला आहे. देवीचे रोग-जीवाणु श्वासावाटे माणसाच्या शरीरात शिरतात. तेथे त्यांची काही विशिष्ट प्रकारच्या पेशींत पुढील वाढ होते. ही वाढ पूर्ण होण्यास दहा ते चौदा दिवस लागतात. या वेळी वाढ्यात्कारी रोगाचे एकही चिन्ह आढळून येत नाही. दहा ते चौदा दिवसांच्या या काळाला अधिशयन काल असे म्हणतात. यानंतर हे असंख्य जीवाणू रक्तात प्रवेश करतात त्या वेळी प्रथम रोग्याला ताप येतो. साधारणतः तापाच्या तिसऱ्या दिवशी देवी बाहेर पडतात. सुरुवातीला एकाएकी खूप ताप चढतो. सामान्यपणे तो ३९.५ अंश ते ४०.५ अंश सेंटीग्रेड (१०३ अंश ते १०५ अंश फॅरनहाइट) इतक्या प्रमाणात वाढतो. रोग्याच्या सर्वांगाला तीव्र वेदना होतात. डोके, पाठ, कंवर खूप ठणकू लागतात. त्याला विलक्षण थकवा येतो. त्याची अन्नावरची वासना उडते. कित्येकदा उलट्या होतात. ताप आल्यानंतर तिसऱ्या दिवशी रोग्याच्या अंगावर एक विशिष्ट प्रकारची उगवण दिसून येते व तिच्यावरोवरच तापाचे प्रमाण कमी कमी होत जाते. प्रथम चेहऱ्यावर व नंतर हातापायावर व नंतर छाती-पोटावर या क्रमाने सामान्यतः उगवण दिसू लागते. ही सर्व उगवण शरीरावर एकाच वेळी उमटते. त्यामुळे रोग्याच्या अंगावरील सर्व फोड सामान्यपणे सारख्याच अवस्थेत वाढताना दिसतात. प्रारंभी ही उगवण तांबड्या डागाप्रमाणे दिसते. नंतर तिच्या पित्तासारख्या गांधी होतात. त्यांचे फोडात रूपांतर होते. या फोडातील लस प्रथम पाण्यासारखी स्वच्छ असते. पण कालांतराने ती पुवा सारखी पांढरी होते. नंतर या फोडांवर खपल्या धरतात. व सुमारे दोन-तीन आठवड्यानंतर त्या पडून



जातात. कांजिण्या व गोवर या रोगांतहि उगवण दिसून येते पण वगची देवीची वैशिष्ट्ये त्यांत नमतात.

**तीव्र व सौम्य प्रकार** प्रामुख्याने तीव्र आणि सौम्य अशा दोन प्रकारचे रोगी यात आढळून येतात. तीव्र प्रकारतहि काही अति तीव्र असतात. रक्तस्राव होण्याच्या देवी या अशाच तीव्र स्वरूपाच्या असतात. या प्रकारात रोग्यांचा मृत्यु अटळ असतो. कित्येक अति तीव्र देवीचे रोगी तर उगवण येण्याच्या अगोदरच मृत्यु पावतात. काही तीव्र प्रकारांत देवीचे फोड अत्यंत दाटीदाटीने येतात. त्यामुळे देवीच्या दोन फोडांमध्ये वेगळे अंतरच उरत नाही. सौम्य प्रकारात मात्र हे फोड विलग विलग आढळून येतात. व त्यांची संख्याहि कमी अधिक प्रमाणांत आढळते.

देवीच्या रोगाचे आणखी सौम्य परंतु तरीहि धोकादायक असे एक स्वरूप आहे. ज्यांनी पूर्वी देवीची लस टोचून घेतली आहे त्यांच्या अंगांत काही प्रतिकार शक्ती आहे अशा लोकांत हा सौम्य रोग आढळतो. या सौम्य अवतारात ताप, पाठदुखी, यांसारखी पूर्वलक्षणे कित्येकदा आढळतच नाहीत. उगवणही इतकी विरळ असते की, पुष्कळदा सर्व शरीरावर आठ-दहाच फोड उगवतात. उगवणीची अवस्थांतरेहि झपाट्याने होतात. काही उगवण तर खपल्या धरण्यापूर्वीच नाहीशी होते. रोग्याच्या दृष्टीने सौम्य असलेला हा रोग समाजाच्या दृष्टीने अतिशय धोकादायक असतो. याच्या संसर्गाने होणारा रोग गंभीर स्वरूपाचाही असू शकतो. त्याचबरोबर रोग सौम्य असल्याने या रोग्याचा समाजातील वावर निर्धोकपणे चालू असतो. त्यामुळे सहाजिकच देवीचा प्रसार वाढतो. अंधत्व ही देवीमुळे येणारी सर्वात मोठी विकृती आहे. मूत्रपिंडाचे विकार पक्षघात, व अन्य विकृती होण्याचाहि संभव या रोगात असतो. देवीचे शेकडा १० ते ४० रोगी मरण पावतात.

एकदा देवी आल्या की, बहुधा दुसऱ्यांदा देवी येण्याचा संभव उरत नाही. त्यांचे कारण रोग्याच्या शरीरांत देवीची प्रतिकार करणारी शक्ति निर्माण होते. सामान्यतः ही आयुष्यभर टिकते. अशाचसारखी प्रतिकारशक्ति देवीची लस टोचल्याने निर्माण करता येते. तथापि ती सामान्यपणे तीन वर्षांपर्यंत टिकते. यासाठीच देवीची लस वारंवार टोचणे अगत्याचे आहे.

**“देवी प्रतिबंधक उपाय”** देवीची उगवण जशी सर्व शरीरावरील वाह्यत्वचेवर येते, तशीच तोंड व घशातल्या

श्लेश्मल त्वचेवर पण येते. ही त्वचा नाजूक व पातळ असल्याने त्या वरील देवीचे फोड लगेच फुटतात व त्यांतून कोट्यावधी जीवाणू वाहेर पडतात. वॉलणं, हमणे, श्वासोच्छ्वास करणे, वगैरे नानाविध क्रियांवगेवर हे जीवाणू फार मोठ्या संख्येने नाकातोंडावाटे हवेत मगत फेकले जातात व तरंगत राहतात. या हवेत श्वासोच्छ्वास करणाऱ्या व्यक्तींना देखील देवीचा संसर्ग होण्याची शक्यता जास्त प्रमाणात असते. स्वाभाविकपणेच हा धोका रोग्याच्या सान्निध्यात वावरणाऱ्या व्यक्तीला जास्त असतो. श्लेश्मल त्वचेप्रमाणेच अंगावरील फोडांमध्ये व खपल्यात देवीचे जीवाणू असतात. खपल्यांपासून व राग्याने वापरल्येला व दूषित झालेल्या भांडी, विछाना, कपडे, वगैरे वस्तुद्वारा पण देवीचा प्रसार होतो. तथापि दूषित वस्तुद्वारा होणारा देवीचा फैलाव हा हवेच्या द्वारा होणाऱ्या फैलावापेक्षा कमी प्रमाणात असतो, असे मानले जाते.

देवी हा जरी संसर्गजन्य रोग असला तरी तो इन्फ्लुएन्झा इतका झटपट पसरत नाही. देवीची लागण देवीच्या रोग्यापासूनच होते. तसेच रोगाच्या अधिशयन काळांत रोग्याच्या शरीरातून देवीच्या रोग जीवाणूंचा उत्सर्ग होत नाही. त्यामुळे अधिशयन काळात देवीच्या रोग्याच्या संपर्कात असणाऱ्या लोकांना देवीचा रोग होत नाही. मानवाच्या दृष्टीने ही गोष्ट फार फायदेशीर आहे. कारण त्यामुळे सर्व रोग्यांना संसर्गजन्य रोगाचे रुग्णालयात अलिप्त ठेवून देवीच्या प्रसारास आळा घालणे शक्य होते. देवीचा ताप आल्यानंतर मात्र हि स्थिती बदलते. तापाच्या पहिल्या दिवसापासून ते थेट त्वचेवरील शेवटची खपली पडून जाईपर्यंत रोग्याच्या शरीरातील देवी-जीवाणू वाहेर पडत असतात. या संपूर्ण कालखंडात रोग्यापासून इतरांना देवी होण्याची शक्यता असते. त्यामुळे या संपूर्ण काळात देवीचे सर्व रोगी संसर्गजन्य रोगांच्या रुग्णालयात इतरांपासून अलिप्त ठेवणे अत्यंत जरूरीचे असते.

**संसर्गजन्य रोगांचे रुग्णालय** देवीवर अद्यापहि उपचार सापडलेला नाही ही गोष्ट खरी आहे. तरी सुध्दा संसर्ग जन्य रोगांच्या रुग्णालयात देवीच्या रोग्याची विशेष काळजी घेतली जाते. रोगी दाखल झाल्यापासून त्याला होणारा दाह व त्रास कमी करण्यासाठी, आंधळेपणा व इतर दुष्परिणाम टाळण्यासाठी, व्रण शक्य तितके कमी होण्यासाठी व रोगाची वाधा निरूपद्रवी होण्यासाठी विविध



उपाययोजना केली जाते. तसेच दाखल झालेल्या रोग्याच्या सान्निध्यांत वावरणाऱ्या व्यक्तींना तावडतोव देवी काढण्याची व्यवस्था केली जाते. संसर्गजन्य रोगांचे रूग्णालय नेहमीच्या रूग्णालयापेक्षा वेगळ्या प्रकारचे असते. देवीच्या रोग्याकरिता एक स्वतंत्र विभाग असतो. संसर्गजन्य रोगांच्या रूग्णालयांतील देवीच्या रोग्याला भेट देणे म्हणजे रोग प्रसाराला मदत करणेच आहे. तो एक सामाजिक व राष्ट्रीय गुन्हा आहे ही भावना आपण मनात वाणवली पाहिजे. सांसर्गिक रोग्याला रूग्णालयात भेट देण्याची आपली प्रथा मोडून टाकणे हे एक राष्ट्रीय कर्तव्य आहे.

कोणताही रोगी देवीने पछाडला आहे असा संशय आला तरी त्याची वर्दी आरोग्यधिकाऱ्यास तावडतोव देणे, आणि त्याचप्रमाणे देवीचा रोग आहे ही निश्चित झाल्यावर (कित्येकदा निश्चित करण्यापूर्वीच) त्याला सांसर्गिक रूग्णालयांत हलविणे हे अगत्याचे आहे. रूग्णालयामध्ये जाण्यात रोग्याच्या व नातेवाईकांच्या अनेक गैरसोयी होतात तरीही या रोगाला प्रतिबंध करावयाचा असेल तर या गोष्टी अटळ म्हणून करावयास पाहिजेत यात शंका नाही.

**रामबाण प्रतिबंधक उपाय** लस टोचणे हा देवीवर सर्व श्रेष्ठ व रामबाण असा प्रतिबंधक उपाय आहे. देवीच्या जीवाणूंचा (व्हायरस) शोध लागण्यापूर्वी देखील हा उपाय सर्वमान्य झाला होता. भारतातही प्रचीन काळापासून ही लस वापरावयाची कृति ठाऊक होती, तथापि या लसीची उपयुक्तता खात्रीशीर पटविण्याची कामगिरी १७९८ साली जेनरने केली. त्यासाठी गायीते येणाऱ्या देवीसारख्या दुसऱ्या एका रोगातील लसीचा उपयोग केला होता. सध्या उपलब्ध असलेल्या लसीतही गायीतील देवीचे जिवंत जीवाणू असतात. हे जीवाणू माणसाच्या शरीरांत टोचल्यावर त्यांची तेथे वाढ होते व त्यामुळे प्रतिबंधक

शक्ती निर्माण होते. ही लस सुरक्षिततेच्या दृष्टीनेही फारच समाधानकारक होती. तथापि ही लस फार काळ टिकत नाही. त्यामुळे खेडोपाड्यांपर्यंत ही लस पोहोचवणे हे अत्यंत कठीण काम आहे. नुकतीच एक नवीन प्रकारची वाळवलेली लस सध्या उपलब्ध झाली आहे. ती भारतीय तापमानांत सुमारे चार आठवडे टिकते. याच लसीचा उपयोग आपल्या राष्ट्रीय देवी निर्मूलन योजनेत केला जाणार आहे.

**साधारणतः** मुल कुशीवर वळावयाला लागण्याच्या आंत देवी काढणे उत्तम. या दृष्टीने मूल तीन महिन्याचे झाले की, त्याला देवी काढाव्यात. देवीची साथ असेल तर मात्र मुलाच्या वयाचा विचार न करता केव्हाही देवी काढाव्यात. कोणत्याही कारणास्तव या देवी काढावयाचे पुढे ढकलू नये. देवी काढल्यानंतर जी प्रतिकार शक्ती निर्माण होते ती सुमारे ३ ते ५ वर्षांपर्यंत टिकते. या दृष्टीने दर तीन वर्षांनी देवी परत काढणे जरूरीचे आहे. देवी काढल्यानंतर पुढील काळजी घ्यावी:- (१) ह्या देवी उन्हात वाळू देऊ नयेत (२) त्या सावलीतच सुकु घाव्यात. (३) त्यावर वोरिक पावडर व्यतिरिक्त इतर कोणतीही औषधे लावू नयेत. कित्येक लोकांत त्यावर राख, माती, शेण, विटकरीची पूड वगैरे लावण्याची पद्धत असते. ही पद्धत अत्यंत घातक असते. कारण त्यामुळे धनुर्वात होण्याची शक्यता असते. (४) देवी कोरड्या ठेवाव्यात व त्याची लस शरीराच्या इतर भागाला लागू देऊ नये. देवी काढल्यावर किमान एक देवी तरी फुगली पाहिजे. तसे न झाल्यास देवी काढण्याची क्रिया असफल समजावी. व पुन्हा देवी काढून घ्याव्यात; व त्यासाठी तज्ञांचा सल्ला घ्यावा. आपल्या शरीरात प्रतिकारशक्ती जास्त आहे असे समजून गप्प वसू नये. लहान मुलांना, तसेच देवी काढल्यावर तीन वर्ष झालेल्या प्रौढांनी देवी काढून घेतल्या तर राष्ट्रीय देवी निर्मूलन योजना संपूर्ण यशस्वी होईल.



## 3

## कुष्ठरोग

गेल्या पन्नास वर्षांत आधुनिक वैद्यकशास्त्रात खूप प्रगती होऊन सुध्दा त्याला होणारे रोग यांचे कित्येक अंगावढल फार थोडी माहिती सामान्य लोकांना उपलब्ध आहे. कुष्ठरोगावढलचे ज्ञान अपुरे आहे पण कुष्ठरोगावढलचे अज्ञान किंवा त्यावढलची चुकीची माहिती चुकीच्या कल्पना व अफवाच अधिक आहेत. सामान्य लोकांना ही माहिती नमणे स्वाभाविक आहे असे मानता येते. पण वैद्यक शास्त्रातील अभ्यासू व व्यावसायिक यांच्यामध्येही हे अज्ञान पसरलेले एखादे वेळेस नजरेस येते तेव्हा त्यांची कीव येते. परिणामतः कुष्ठरोग ही वैद्यकीय शास्त्रातील समस्या होण्याऐवजी ती सामाजिक समस्या (महारोग) बनला आहे. म्हणून कुष्ठरोगाविषयीची ही चुकीची माहिती घालविणे व कुष्ठरोगासंबंधीची शास्त्रीय व योग्य माहिती पुरविणे ही कुष्ठरोग संग्रामाविरुद्धची पहिली पायरी आहे. कुष्ठरोग हा इतर अनेक रोगासारखाच एक रोग आहे. त्यामुळे त्याला संध्या दिले जाते इतके अवास्तव सामाजिक महत्त्व न देता त्याला वैद्यकीय समस्या बनविणेच इष्ट आहे.

**रोग अनुवंशिक नाही** कुष्ठरोगाविषयी अनेक गैरसमज आहेत. त्यापैकी एक म्हणजे कुष्ठरोग हा अनुवंशिक आहे. आधुनिक प्रयोग-पाहणीवरून आता असं सिद्ध झालेलं आहे की कुष्ठरोग आनुवंशिक नाही.

आधुनिक शास्त्रीय संशोधनाने अनेक तत्वे आता माहित झाली आहेत. इतर अनेक रोगांप्रमाणेच कुष्ठरोग देखील एका विशिष्ट जंतूमुळे होतो. सर्व सामान्य वाटतो तसा हा रोग भयंकर नाही. तुलनेने बोलायचे झाले तर क्षय विषमज्वर इत्यादी रोग कुष्ठरोगापेक्षा कितीतरी अधिक प्रमाणात सांसर्गिक आहेत. कुष्ठरोग आनुवंशिक तर नाही. मुख्य म्हणजे सर्वच कुष्ठरोगी सांसर्गिक प्रकारचे नसतात आपल्या देशातील ८० टक्के असे रोगी असांसर्गिक प्रकारात मोडतात. म्हणजेच अधिकांश कुष्ठरोग्यांपासून समाजात रोग प्रसाराचा धोका नसतो. उरलेले २० टक्के रोगी सांसर्गिक प्रकारचे असतात. त्यांच्याशी देखील क्वचित्काळी झालेल्या एखाद्या स्पर्शाने किंवा संपर्काने रोगाची वाधा इतरांना होत नाही कारण

माणमात रोगाविरुद्ध झगडण्याची ताकद निर्गर्तः मोठी असते.

अमेरिकोतील डॉ. शेपडे डॉ. हेझलव्हड आदि प्रमुख तज्ञांच असं म्हणणं आहे की उपचार चालू झाल्यापासून अवघ्या तीन ते सहा महिन्यातच अत्याधिक सांसर्गिक प्रकारचा रोगी देखील रोग प्रसाराच्या दृष्टीने निरूपद्रवी ठरतो. अशा अल्पकाळ टिकणाऱ्या एका अवस्थेबात सर्वच कुष्ठरोग्यांना कायमचे समाजवात्य ठेवणे अनुचित वा अयोग्यच ठरेल. कुष्ठरोग हा इतर रोगांप्रमाणेच एक रोग असल्यामुळे फक्त याच रोग्यांना वेगळे काढून त्यांचेवत एकाकी भूमिका घेणे योग्य ठरणार नाही. किंवा तो एक फार मोठा सामाजिक अन्याय ठरेल.

**रोग लपविणेची वृत्ती वाढेल** अशी स्थिती झाली तर त्याचे सर्वसामान्य रोग्यांवर काय परिणाम होतील याचा देखील गंभीर विचार करावयास हवा. सर्वसामान्य लोकांची कुष्ठरोगाविषयीची कल्पना म्हणजे विकृती झालेले रोगी अथवा कुष्ठरोगी भिकारी. पण आकडेवारी लक्षात घेतल्यास ज्यांना विकृती झाली आहेत असे फक्त १०ते१५ टक्केच कुष्ठरोगी आढळतात. अधिकांश कुष्ठरोग्यांचा रोग इतरांना ओळखता येत नाही आणि अशा माहित नसलेल्या रोग्यांपासून कुष्ठरोगाचा नकळत प्रसार होतो.

आधुनिक उपचार पद्धतीत अशा न ओळखू येणाऱ्या कुष्ठरोग्यांवर उपचार करण्यावर अधिक भर दिला जातो. ते अत्यंत योग्य आहे. इतर रोगांप्रमाणेच तो डॉक्टरांचा लक्षात आल्याबरोबर त्याचा उपचार झाल्यास तो सहा महिन्यांच्या आत बरा होण्याची शक्यता अधिक असते. जे अगल्याने उपचार करून घेत नाहीत त्यांचे बाबतीत तो रोग वळावतो अन् पुढे अंगावर विकृती निर्माण होते. इतर रोगांप्रमाणे हाही रोग त्वरित व योग्य उपचाराने बरा होणारा रोग आहे. त्याचा वाऊ करण्याचे काहीच कारण नाही.

**ह्या रोगाबद्दलची अधिक माहिती अशी:** १ कुष्ठरोगाला कारणीभूत असणाऱ्या जंतूंना मायको बॅक्टेरियम् लेपरी



(*M. leprae*) म्हणतात. २ कुष्ठरोगाचे जंतूमुळे एखाद्याला संसर्गदोष घडलेला आहे की नाही हे सांगता येत नाही. रोग निर्माण झाल्यावर म्हणजे चट्टा दिमू लागल्या वरंगवर अथवा कातडीची संवेदना कमी झाल्यावर तो ओळखता येतो. ३ स्पष्ट चट्टे नसलेल्या प्रकारचे (Lepromatous) आणि सीमा रेपेवरील रोगी सर्वात जास्त संसर्गदोषयुक्त असतात. स्पष्ट चट्टे असलेल्या (Tuberculoid) प्रकारचे रोगी सामान्यतः संसर्गयुक्त असत नाहीत. Tuberculoid रोगांच्या संपर्काच्या चौपट धोका Lepromatous रोग्यांच्या संपर्कात असतो. ४ रोग दृष्टोत्पत्तीस येण्यासाठी लागणारा ३ ते ५ वर्षांचा कालावधी हा रोगप्रसाराला कारणीभूत असतो. टळकपणे न दिसणाऱ्या विकृती असणारे पण कळून न आलेले प्राथमिक अवस्थेतले कुष्ठरोगी हे बहुतेक संसर्ग दोषांचे उगमस्थान म्हणून सांगता येईल. ५ समाजातील बहुतेक व्यक्तीमध्ये कुष्ठरोगाच्या प्रतिकाराची निर्मगदत्त

शक्ती असते त्यामुळे सहसा संसर्गदोषाची वाधा होत नाही. ६ कुष्ठरोगातील विकृती कित्येकदा आपांआप दिसेनाशा होतात. लहानपणी लागण झालेल्या रोग्यांपैकी ६६ टक्क्यांपेक्षा जास्त रोग्यांच्या विकृती प्रौढ होण्यापूर्वी नाहीशा झालेल्या आढळतात. ७ योग्य उपचारांनी कुष्ठरोग संपूर्ण वग होऊ शकतो.

भारतात सुमारे २५ लाख कुष्ठरोगी आहेत. पण फक्त ५.३० लाख लोकांची नोंद आहे. संसर्ग दोषयुक्त कुष्ठरोगी अंदाजे ६.२५ लाख आहेत. नोंदलेल्या कुष्ठरोग्यांपैकी ९३.७ टक्के रोग्यांवर इलाज चालू आहे. तर अंदाजलेल्या कुष्ठरोग्यांपैकी फक्त १९.९ टक्के रोग्यांवर उपचार चालू आहेत. याचा अर्थ असा होतो की भारतात निदान ५ लाख संसर्गदोषयुक्त रोगी रोगप्रसार करीत आहेत. या रोग्यांवर उपचार तर नाहीच पण आपणाम कुष्ठरोग झालेला आहे याची त्यांना बहुधा जाणीव देखील नसावी.

सागर १९७८ महाराष्ट्र मंडळ कलकत्ता (रोगासंबंधी गैरसमज वा अपसमज वरेच आहेत आंतरराष्ट्रीय कीर्तीचे वैद्यकीय तज्ज्ञ व “ऑल इंडिया इन्स्टिट्यूट ऑफ पब्लिक हेल्थ ॲण्ड हायनीज” चे डायरेक्टर डॉ. न.श.देवधर यांनी या रोगावरील मांडलेले हे विचार.)

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## महारोग्यांचे सक्तीचे निर्वीर्यीकरण सूचना:

## अन्याय व संपूर्ण अव्यवहार्य

गैरसमजावर आधारीत ठराव पुणे : पुणे महापालिकेच्या सर्वसाधारण सभेसाठी जी कार्यसूची तयार करण्यात आली आहे त्यात ठराव क्र. ३४७ हा देण्यात आलेला आहे. त्यांचा आशय पुढे दिल्याप्रमाणे आहे. “महाराष्ट्रात महारोग्यांचे सक्तीने निर्वीर्यीकरण करणे व त्यांच्यासाठी वेगळी होम सारखे कॅम्प करून त्यांना सक्तीने तेथे ठेवण्याबाबत महाराष्ट्र सरकारला विनंती करणे”. या ठरावातील सक्तीचे निर्वीर्यीकरण या भागापुरतेच विचार सदर लेखात मांडीत आहे.

कुष्ठरोगाविषयी अनेक प्रकारचे गैरसमज आपल्या समाजात प्रचलित आहेत. त्यांतील एक म्हणजे कुष्ठरोग हा अनुवंशिक आहे असा होय. वास्तविक पाहता अनेक शास्त्रीय प्रयोगांवरून याबाबतचा फोलपणा सिद्ध झालेला आहे. वरील ठराव मात्र अशा प्रकारच्या गैरसमजावर आधारित असावा अशी शंका येते.

**रोग अनुवंशिक नाही** आधुनिक शास्त्रीय संशोधनामुळे अनेक प्रकारे आता माहित झाली आहेत. इतर अनेक रोगांप्रमाणेच कुष्ठरोगदेखील एका जंतूमुळे होतो. सर्व सामान्य वाटतो तसा हा रोग भयंकर वा अत्याधिक सांसर्गिक नाही. तुलनेने वोलायचे झाले तर क्षय टायफॉईड इत्यादि रोग कुष्ठरोगापेक्षा कितीतरी अधिक प्रमाणात सांसर्गिक आहेत. कुष्ठरोग अनुवंशिक नाही हे वर आलेच आहे. मुख्य म्हणजे सर्वच कुष्ठरोगी सांसर्गिक प्रकारचे नसतात. आपल्या देशात एकूण कुष्ठरोग्यांपैकी ८० टक्के असांसर्गिक प्रकारचे असतात म्हणजेच अधिकांश कुष्ठरोग्यांपासून समाजात रोगप्रसाराचा धोका नसतो. जे उरलेले २० टक्के रोगी सांसर्गिक प्रकारचे असतात त्यांच्याशी देखील क्वचितकाळी झालेल्या एखाद्या स्पर्शाने रोगाची वाधा निरोगी माणसाला होत नाही.

**परिणामकारक औषध आहे** अमेरिकोतील डॉ शेपर्ड, डॉ हेझलवुड आदि प्रमुख डॉक्टरवर्गाचे तर असे म्हणणे आहे की उपचार चालू झाल्यापासून अवघ्या तीन ते सहा महिन्यांतच अत्याधिक सांसर्गिक प्रकारचा रोगीदेखील रोग

प्रसाराच्या दृष्टीने निरूपद्रवी होतो. म्हणून अशा अल्पकाळ टिकणाऱ्या एका अवस्थेबाबत सर्वच कुष्ठरोग्यांना कायमचे खच्ची करणे अयोग्य व अन्याय ठरेल कुष्ठरोग हा इतर अनेक रोगांप्रमाणेच एक रोग आहे. असे असताना फक्त याच रोग्यांना वेगळे काढून त्यांचेबाबत अशी एकाकी भूमिका घेणे योग्य ठरणार नाही. तो फार मोठा सामाजिक अन्याय ठरेल.

**रोग लपविणेची प्रवृत्ति वाढेल** अशी सक्ती झाली तर त्याचे सर्व सामान्य रोग्यांवर काय परिणाम होतील याचादेखील विचार करावयास हवा. सर्वसामान्य जनतेची कुष्ठरोगाची कल्पना म्हणजे विकृति आलेले रोगी अथवा कुष्ठरोगी भिकारी. पण जरा खोलात जाऊन आकडेवारीचा अभ्यास केला तर आपणास वेगळेच तथ्य आढळते. ज्यांना अत्याधिक विकृति झाल्या आहेत आणि म्हणूनच ज्यांना सर्वसामान्य माणूसदेखील कुष्ठरोगी म्हणून सहज ओळखू शकतो असे रोगी एकूण कुष्ठरोग्यांच्या मानाने फारच कमी प्रमाणात आढळतात. शेकडा १० ते १५ कुष्ठरोग्यांनाच अत्याधिक प्रमाणात विकृति आलेल्या असतात. याचा अर्थ अधिकांश कुष्ठरोग्यांचा रोग इतरांना ओळखू येऊ शकत नाही. अशा माहित नसलेल्या रोग्यांपासूनच हा रोग जास्त प्रमाणात पसरतो.

आधुनिक उपचार पद्धतीत अशा ओळखू न येणाऱ्या कुष्ठरोग्यांवर उपचार करण्यावर भर दिला गेला आहे आणि ते अत्यंत योग्य आहे. हल्ली अनेक कुष्ठरोगी जे समाजाला सहजपणे ओळखू येत नाहीत असे उपचार केंद्रांवर औपधोपचारासाठी येतात. पण वरील सूचनेप्रमाणे सक्तीचे निर्वीर्यीकरण जर चालू झाले तर मात्र मोठा विकट प्रसंग ओढवेल. अनेक कुष्ठरोगी आपला रोग लपविण्यास प्रवृत्त होतील.

**राज्यसभेत बिल टिकले नाही** सुमारे तीन वर्षांपूर्वी (१९६९मध्ये) राज्यसभेत पुण्याच्याच खासदार श्रीमती शकुंतलावाई परांजपे यांनी अशाच अर्थाचे एक बिल



मांडले होते हे वाचकांना स्मरत असेलच. या विलाला सर्व क्षेत्रातून कडवा विरोध झाला होता. इंडियन असोसिएशन ऑफ लेप्रॉलॅजिस्ट्स गांधी मेमोरियल लेप्रसी फौंडेशन आणि देशातील अनेक संस्थांनी या विलाला कडाडून विरोध केला होता. अर्थातच ते विल टिकले नाही.

**ठराव सूचना अव्यवहार्य** महाराष्ट्रात एकूण तीन लाखांच्या आसपास कुष्ठरोगी आहेत असा तज्ज्ञांचा अंदाज आहे. त्यातील जास्तीतजास्त सुमारे ७ ते ८ टक्के कुष्ठरोगी भिकारी असावेत. म्हणजे ही संख्या २० ते २५ हजार होईल. कुष्ठसंस्थांमध्ये राहणारे सुमारे पाच हजार कुष्ठरोगी धरले तरी इतर लोकांना माहित असणारे कुष्ठरोगी फार तर तीस हजार होतील. (यात मुले अल्पवयीन म्हातारे सर्व प्रकारचे रोगी आले.) याशिवाय वाकीचे रोगी जे आहेत ते काय स्वतःच्या गळ्यात पाट्या लावून हिंडतात काय? त्यांना आधी शोधून तर काढले पाहिजे!

महाराष्ट्र राज्यातर्फे जवळ जवळ एक हजार पूर्णकार्य करणारे पगारी सेवक नेमून आणि शेकडो केंद्रे चालवून (अनेक वर्षांमध्येहि) अद्याप सर्वच्यासर्व कुष्ठरोग्यांना शोधून काढता आले नाहीत. तसे करणे अत्यंत दुरापास्त आहे. ही वस्तुस्थिती असताना सर्व कुष्ठरोग्यांचे निर्वीर्यीकरण करणे अशक्य व अव्यवहार्य कसे आहे हे सहज ध्यानात येईल. सर्वसामान्य लोकांच्या वावतीत संतति नियमनाचे जे नियम जी सूत्रे आपण सांगतो त्याच तत्वांवर वा सूत्रांवरच कुष्ठरोग्यांच्या

संतति नियमनाचा प्रश्न हाताळला जावा. कुष्ठरोगाचा प्रश्न कोणत्याहि तात्कालिक उपाययोजनांनी वा भावनेच्या भरात झटक्यात सुटण्यासाखा नाही.

पुणे महानगरपालिकेच्या सदस्यांना या विषयात जर खरी आस्था असेल (आणि तशी आहे यावद्दल मला विश्वास आहे) तर त्यांनी या विषयाचा अभ्यास करावा. आवश्यक तर तज्ज्ञांचा सल्ला घ्यावा आणि वीस पंचवीस वर्षांसाठी कुष्ठनिवारण कार्य योजना आखावी.

**शिक्षण कार्यक्रम योग्य तपासणी** अशा योजनेत सर्व सामान्य जनतेच्या मनात या रोगावद्दलचे जे गैरसमज आहेत ते दूर करण्याच्या दृष्टीने कुष्ठरोग विषयक आरोग्यशिक्षणाचा सूत्रबद्ध कार्यक्रम हाती घ्यावा. सर्व भागातील आणि सर्व स्तरातील व्यक्तींना कुष्ठरोगाची माहिती मिळेल अशी व्यवस्था करावी. शाळातील मुलामुलींची आरोग्य तपासणी अधिक लक्षपूर्वक करावी. कारखाने झोपडपट्ट्या इत्यादी ठिकाणी शारीरिक तपासणी करावी. महानगरपालिकेच्या सर्व दवाखान्यात कुष्ठरोगावर उपचाराची सोय करावी. अशा उपायांनीच दहा वीस वर्षात परिणामकारक बदल घडून आलेला दिसेल. तसा बदल घडून आणण्यात लोकनियुक्त प्रतिनिधींनी जनजागृती करण्याचा आपापला वाटा उचलावा अशी माझी त्यांना आग्रहाची विनंती आहे.

या विषयावर सांगोपांग चर्चा करण्याची कोणाची इच्छा असल्यास त्यासाठी आधी ठरवून त्यांनी मला अवश्य भेटावे



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## रोग प्रतिबंधक उपाय

१ देवी देवीच्या रोगापासून संरक्षण मिळावे म्हणून इ.स. पूर्व १५०० मध्ये भारतातील “धन्वंतरी” ने देवी आलेल्या माणसाच्या फोडातील लस निरोगी माणसाला टोचली होती असा उल्लेख आहे. चीनमध्ये देवीपासून संरक्षण मिळविण्यासाठी देवी आलेल्या माणसाच्या फोडांवरील खपल्याची पूड निरोगी माणसाच्या नाकपुड्यांत घालण्याची पद्धत होती. देवी प्रतिबंधक लसीचा शोध १७९६ मध्ये डॉ. एडवर्ड जेनर या इंग्लिश वैद्यकीय अधिकाऱ्याने लावला. घटना गमतीदार होती.

देवीची साथ चालू असलेल्या एका खेड्यात धिटाईने फिरणारी एक मुलगी जेनरला दिसली त्याने कुतुहलाने त्या मुलीला विचारले की आपल्याला देवी येतील अशी तुला भीती वाटत नाही का? यावर त्या मुलीने मूळच्याच धिटाईने त्याला सांगितले की, ‘मला काऊपॉक्स झाल्या होत्या, त्यामुळे आता देवी रोग होणार नाही’. डॉ. जेनरला आश्चर्य वाटले. त्याने गावात चौकशी केली आणि त्याच्या लक्षात आले की त्या भागात ही समजूत सगळ्यांचीच आहे. त्याने लगेच याचा पडताळा पाहण्याचे ठरविले.

१४ मे १७९६ चा दिवस सारा नेलमीस नावाच्या काऊपॉक्स झालेल्या मुलीच्या हातावरील फोडाची लस काढून डॉ. जेनरने ती जेम्स फिप्स या आठ वर्ष वयाच्या मुलाच्या हातावर टोचली. जीम्सच्या हातावर फोड आला आणि नंतर खपली पडून वराही झाला. मग दोन महिन्यांनी डॉ. जेनरनी याच मुलाला परत देवीच्या फोडातील लस टोचली जेम्सला या वेळी मुळीच फोड आला नाही. डॉ. जेनरला देवीच्या रोगाविरुद्ध प्रतिकार शक्ती देणारी अमोघ शक्ती सापडली ती देवीची लस.

देवीच्या लसीने प्रतिकार शक्ती निर्माण होत असल्या मुळे प्रत्येक नवजात बालकाला यशस्वीपणे देवी टोचल्या गेल्या तर देवीची साथ उद्भवण्याचा प्रश्नच उरणार नाही. हा देवीरोग निर्मूलन योजनेचा पाया होता त्यानुसार या कार्यक्रमात प्रत्येक नवजात बालकाला देवीची लस टोचण्याचा देशव्यापी कार्यक्रम तर हाती घेण्यात आलाच पण त्याचबरोबर ज्यांना कधी देवी टोचल्याच

नव्हत्या अशा सर्वांना हुडकून काढून त्यांना ही देवीची लस टोचण्यात आली आणि अशा प्रकारे संपूर्ण समाजात देवीच्या रोगाविरुद्ध प्रतिकार शक्ती निर्माण करण्यात यश मिळताच आपणाला देवीचा रोगी शोधूनही सापडेनासा झाला आणि देवीरोग निर्मूलन कार्यक्रमात आपण यश मिळवू शकलो.

सुरुवातीला भारतात द्रवरूप लस वापरण्यात येत असे ही लस आपल्याकडे एकोणीसाव्या शतकाच्या पहिल्या दशकात परदेशातून आली. भारतात तिचे उत्पादन मात्र त्याच शतकाच्या उत्तरार्धात सुरू झाले. आजकाल मात्र सगळीकडे ‘फ्रीजड्राईड’ लसीची कार्यक्षमता तर जास्त आहेच शिवाय ग्रामीण भागात ती सहाजपणे वापरली जाऊ शकते. रेफ्रिजरेटरमध्ये ४° ते १०° सेंटीग्रेड तापमानात ठेवल्यास ती वर्षभर कार्यक्षम राहू शकते. अर्थात एकदा ग्लिसरीन घालून “लस” तयार केल्यावर मात्र ती सहा तासांचे आत वापरावी लागते. सुरुवातीला आयात करावी लागणारी ही लस आता भारतात तयार होते. पाटवडा नगर (उत्तरप्रदेश) गिंडी (मद्रास) वेळगाव (म्हैसूर) आणि हैद्राबाद (आंध्र) ही त्यातील प्रमुख ठिकाणे आहेत. फ्रिजड्राईड लस पावडरीचे रूपात असल्याने तिची खेडे भागात ने आण करणे सोयीचे असते.

२ हिवताप हिवताप हा मुख्यत्वेकरून वृत्तीय प्रदेशातील रोग म्हणून ओळखला जातो कारण या प्रदेशातील हवामान हिवतापाच्या प्रसाराला उपयुक्त असल्याने आपल्या देशात हिवतापाला आळा घालणे ही अत्यंत अवघड अशी समस्या होऊन वसलेली आहे. डासांमध्ये डी.डी.टी. विरोधी प्रतिकार शक्ती निर्माण झाल्यानंतर वी.एच.सी ५०% ह्य गॅमॅक्सीन (हे कीटकनाशक वापरण्यात आले आणि सध्या जास्त मलेरियाग्रस्त भागांमध्ये मॅलेथिऑन नावाचे अत्यंत प्रभावी कीटकनाशक वापरण्यात येत आहे). अमेरिका युरोप अशा प्रदेशातील हवामानात हिवतापाच्या प्रसाराला नैसर्गिक आळा वसत असल्याने तेथे एकदा हिवताप आटोक्यात आल्यानंतर तो परत डोके वर काढू शकला नाही.



३ हत्तीपाय क्यूलेक्स जातीच्या डासामुळे हत्तीपाय (फायलेरिया) चा प्रसार होतो. एकदा फायलेरिया झाल्यानंतर त्याच्यावर निवारक असा उपचार नाही पण त्याचा प्रभाव कमी करण्यासाठी उपचार करता येतो. महाराष्ट्रात चंद्रपूर नागपूर भंडारा या जिल्ह्यातील काही भाग तसेच ठाणे जिल्ह्यातील वसई भागात फायलेरिया असल्याचे आढळून आल्याने त्या ठिकाणी फायलेरिया प्रतिबंधक पथके उभारण्यात आली आहेत. फायलेरियाचे प्रतिबंधनासाठी डासांच्या निर्मितीला आळा घालणे हा प्रमुख प्रतिबंधक उपाय आहे.

४ विषमज्वर आणि कावीळ हे दोन्ही साथीचे रोग म्हणून ओळखले जातात. या पैकी विषमज्वर (टॉयफाईड) वर निश्चित असे निवारक (Curative) इलाज करता येतात पण कावीळीवर मात्र असे निवारक इलाज उपलब्ध नाहीत. या दोन्ही साथीचे मुख्यत्वेकरून दुपित पाणी हेच कारण असल्याने योग्य पाणी पुरवठ्याची सोय आणि परिसर स्वच्छता या गोष्टीकडे लक्ष देणे प्रतिबंधनाचे दृष्टीने आवश्यक असते. टायफाईड प्रतिबंधक लसीचा वापर सर्व खेडेविभागात केला जात आहेच पण त्यामुळे

उत्पन्न होणारी प्रतिकार शक्ती मर्यादित असल्याने परिसर स्वच्छता उच्च पातळीवर ठेवण्याकडे दुर्लक्ष करून चालणार नाही लस टोचणे हा पर्याय नाही.

५ कॉलरा कॉलरा प्रतिबंधक लसीचे उत्पादन महाराष्ट्रात हाफकीन इन्स्टिट्यूट मूंबई आणि व्हॅक्सीन इन्स्टिट्यूट नागपूर येथे होते आणि ती या साथीच्या प्रतबंधनाला पुरेशी पडेल इतकी नेहमीच तयार असते. पण लसीचे वावतीतील मर्यादा विषमज्वरापेक्षा कॉलर्याला जास्त लागू आहे. उच्च पातळीवर परिसर आणि वैयक्तिक स्वच्छता केल्याशिवाय आपण ह्या रोगाला परिणामकारकरित्या प्रतिबंध करू शकणार नाही.

६ प्लेग प्लेग प्रतिबंधक लसीचे उत्पादन महाराष्ट्रात हाफकीन इन्स्टिट्यूट मूंबई येथे होत असते आज काल या प्रतिबंधक लसीचा उपयोग आवश्यकता नसल्याने होत नसला तरी एखाद्या अचानक उद्भवलेल्या परिस्थितीला तोंड देता येईल इतकी लस त्यांच्याकडे नेहमीच तयार असते.



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## महाराष्ट्रातील जनस्वास्थ्य

सार्वजनिक आरोग्याचा प्रश्न सर्व सामान्य जनतेच्या वैयक्तिक आणि सामुहिक जीवनाशी निगडित असल्याने तो सर्वसामान्य जनतेला अत्यंत जिद्दाळयाचा असतो. त्यामुळेच सार्वजनिक आरोग्य सेवेच्या वावरीत प्रत्येकाला एक विशिष्ट प्रकारचे कुतुहल असणेही स्वाभाविकच आहे. सार्वजनिक आरोग्य सेवा यंत्रणेतर्फे प्रिव्हेंशन इज बेटर दॅन क्युअर या सर्वमान्य तत्वाला अनुसरून देवी हिवताप इ. रोगाच्या प्रसाराला निर्मूलन योजनांच्या द्वारे तर क्षय कुष्ठरोग हत्तीरोग (फायलेरिया) अशा रोगांच्या प्रसाराला प्रतिबंधक योजनांच्या द्वारे आळा घालून जनतेच्या रक्षणाचे यशस्वी प्रयत्न करण्यात येत आहेत. याच्याच जोडीला मातावालसंगोपनाचा धडाडीचा कार्यक्रम हाती घेऊन माता आणि बालकांच्या अकाली मृत्युंना आळा घालण्याचा प्रयत्न केला जात आहे आणि त्यात यशही मिळत आहे.

एक काळ असा होता की सांसर्गिक किंवा संसर्गजन्य म्हणून ओळखल्या जाणाऱ्या वरील रोगांच्या साथीवर साथी येऊन दरवर्षी असंख्य लोक मृत्युमुखी पडत असत. मानवा मानवातील किंवा मानव आणि पशुपक्षातील आपापसातल्या निकट संबंधामुळे उद्भवणाऱ्या आणि पसरणाऱ्या रोगांना आपण “सांसर्गिक” किंवा “संसर्गजन्य” रोग म्हणून ओळखतो. वास्तविक फार पूर्वीच्या काळात अशा रोगांच्या साथीच्या धाडीनंतर मृत्युचे आकडे गोळा करण्यापलीकडे आपल्या हातात विशेष असे उपाय नव्हतेच. परंतु सूक्ष्मदर्शक यंत्राचा शोध लागल्यानंतर आणि जीवजंतुच्या कार्यकारण भाव विषयक दृष्टिकोन “रॉबर्ट कॉक” याने मांडल्यानंतर या संसर्गजन्य रोगावर नियंत्रण ठेवण्याचे निश्चित उपाय आपल्याला गवसले. म्हणूनच या संसर्गजन्य रोगाच्या मोठमोठ्या साथींना आता आळा घालण्यातच नाही तर काही रोगांचे संपूर्ण उच्चाटन करण्यात आपल्याला यश आले आहे. याचाच परिणाम म्हणून मृत्युचे प्रमाण गेल्या काही दशकात मोठ्या उल्लेखनीय प्रमाणात खाली आलेले आढळते.

महाराष्ट्रात १९४७ साली मृत्युचे प्रमाण दर हजारी २४.४ होते ते १९७५ मध्ये दर हजारी १२ पर्यंत

खाली आले. त्याचप्रमाणे माता बालसंगोपनाच्या प्रयत्नांना यश मिळून बालकांना होणाऱ्या सांसर्गिक रोगांना आळा बसून बाल मृत्युचे १९४७ साली असलेले दर हजारातील १८९ हे प्रमाण ७२ पर्यंत खाली आले आहे. मृत्युचे प्रमाण कमी झाल्यामुळे सर्वसाधारण आयुर्मर्यादित चांगलीच वाढ झाली आहे. १९४७ साली ३५ वर्षे असलेली आयुर्मर्यादा १९७५ साली ५७ वर्षांपेक्षा जास्त झालेली आहे. हया आकड्यावरून संसर्गजन्य रोगांना प्रतिबंध करण्यात आपण यशस्वी झालो आहोत हेच सिद्ध होते. महाराष्ट्र शासनाच्या आरोग्य खात्यातर्फे जनतेच्या सहकार्याने कार्यान्वित करण्यात येत असलेल्या योजनांची माहिती करून देणे हे जनतेच्या स्वाभाविक औत्सुक्याच्या समाधानासाठीच नव्हे तर जनतेच्या सहकार्याशिवाय यातील कोणतीही योजना यशस्वी होणे शक्य असल्याने आपल्याकडून काय अपेक्षित आहे हे स्पष्ट करण्यासाठी अत्यंत आवश्यक आहे. महाराष्ट्र शासनाच्या आरोग्य खात्यांतर्फे चालू असलेल्या काही महत्वाच्या कार्यक्रमांचा तपशील पुढील माहिती वरून लक्षात येईल.

**देवीरोग निर्मूलन योजना** मानवाला वर्षानुवर्षे छळत आलेल्या देवीसारख्या भयंकर रोगाच्या निर्मूलनाचा कार्यक्रम जागतिक आरोग्य संघटनेच्या मदतीने हाती घेऊन आपण आज या रोगाचे नुसते महाराष्ट्रातून नव्हे तर संपूर्ण भारतातून समूळ उच्चाटन करण्यात यशस्वी झालो आहोत. १० ऑगस्ट १९७४ पासून महाराष्ट्रात देवीची एकही लागण झालेली नाही. केवळ १० वर्षांपूर्वी म्हणजे १९६७ साली महाराष्ट्रात सुमारे २८००० लोकांना देवीची लागण होऊन त्यातील ५०००० चे वर लोकांना आपले जीव गमवावे लागले होते. ही वस्तुस्थिती आहे. सुदैवाने आपल्या राज्यात आणि देशात वर्षानुवर्षे चालू असलेल्या “देवी प्रतिबंधक लस” टोचण्याचा कार्यक्रमाला “देवी रोग निर्मूलन” कार्यक्रमाने गती देऊन सर्व सामान्य जनतेत देवी रोगाचे विरुद्ध प्रतिकार शक्ती निर्माण करण्यात आपण यशस्वी झालो आणि आरोग्य खात्याच्या प्रयत्नांना जनतेने दिलेल्या सहकार्याची जोड मिळून या भयंकर रोगाला कायमचे नाहीसे करण्यात आपण यशस्वी झालो आहोत. वास्तविक तसे सगळेच रोग भयंकर असतात. देवीच्या



रोगाची लागण झालेले मूल माणूस अथवा स्त्री एक तर त्याला वळी पडते किंवा त्यातून वाचलीच तर अशा व्यक्तीला आपले पुढील जीवन देवीमुळे झालेल्या विद्रुप असा चेहरा घेऊनच व्यतीत करावे लागते. इतके असूनही सुरुवातीला जनतेतील काही गैरसमजुतीमुळे या कार्यक्रमाला अपेक्षेप्रमाणे गती येऊ शकली नव्हती. परंतु आरोग्य शिक्षणाच्या कार्यक्रमाची जोड घेऊन अखेर या अडचणीवर मात करता येऊन देवी रोग निर्मूलनाचे कामात आपण यशस्वी झालो आहोत यात शंकाच नाही. अर्थात आपण मिळविलेल्या या यशावर शिक्कामोर्तव करण्यासाठी या एप्रिल महिन्यात जागतिक आरोग्य समितीतर्फे एक आंतरराष्ट्रीय तज्ञांचे मंडळ महाराष्ट्राला भेट देऊन गेले असून ते महाराष्ट्रातील कार्याचे मूल्यमापन करणार आहे.

**राष्ट्रीय हिवताप निर्मूलन योजना** केवळ २०/२५ वर्षा पूर्वी समाजस्वास्थाचा नंवर एकचा शत्रू म्हणून ओळखल्या जाणाऱ्या हिवतापामुळे केवळ महाराष्ट्रातच वर्षाकाठी सुमारे १ कोटी लोक आजारी पडत आणि त्यापैकी अंदाजे १ लाख लोकांना आपले प्राण गमवावे लागत असत. हिवतापामुळे रोग्याला महिनोन्महिने अंथरूणाला खिळून राहवे लागत असल्याने तो कमालीचा अशक्त होतो. शिवाय सतत बुडत चाललेल्या रोजगारीमुळे त्याच्यावर आणि त्याच्या कुटुंबावर उपासमारीची पाळी आल्याशिवाय राहत नाही. त्यामुळेच आपल्यासाठी शेतकीप्रधान देशात या रोगामुळे व्यक्तीच्या आणि समाजाच्या स्वास्थावर उत्पादनावर आणि त्यामुळेच आर्थिक परिस्थितीवर हिवतापाचे भयंकर परिणाम होत असत. हिवतापाचा फैलाव अॅनाफिलिस जातीच्या डासांच्या मादीमुळे होत असल्याने आणि तिला जगण्यासाठी जनावरांचे अथवा माणसाचे रक्त घेणे आवश्यक असल्याने घरात शिरणाऱ्या अशा डासांच्या नाशासाठी १९५३ मध्ये हाती घेण्यात आलेल्या राष्ट्रीय हिवताप प्रतिबंधक योजनेखाली घोघरी डी.डी.टी. या कीटक नाशकाची फवारणी करण्यात आली. १९५८ पर्यंत या फवारणीचा खूपच चांगला परिणाम होऊन मलेरियाच्या रोगाचा फैलाव रोखला गेला. रुग्णालयात आणि दवाखान्यात १९५२ साली मलेरियावर औषधोपचार केल्या गेलेल्या रोग्यांची टक्केवारी १९.४ होती ती १९५९ साली केवळ २ टक्क्यांवर आली. या यशामुळे प्रभावित

होऊन १९५८ पासून राष्ट्रीय हिवताप निर्मूलन योजना हाती घेण्यात आली.

हिवताप निर्मूलन योजनेत सुध्दा घोघरी डी.डी.टी. च्या फवारणीचा कार्यक्रम घेऊन एकदा हिवतापाच्या प्रसाराला आळा बसताच त्याच्या जोडीला समाजातील हिवतापाचे पूर्ण रोगी शोधून काढून त्यांच्यावर योग्य औषधोपचार करून त्यांच्या रक्तातील हिवतापाच्या जंतूचा नाश करण्यासाठी विशेष यंत्रणा उभारण्यात आली. यामुळे समाजातील हिवतापाचे जंतूच नाहीसे करून हिवताप निर्मूलनाचे ध्येय गाठता येईल अशी खात्री वाटत होती. १९५८ साली सुरू झालेल्या या कार्यक्रमाला १९६४-६५ पर्यंत अपेक्षित यशही आले. हिवतापामुळे मृत्यु ही गोष्ट केव्हाच इतिहास जमा झाली होती. १९६४-६५ मध्ये सर्व्हे राज्यातून जमा केल्या गेलेल्या तापाच्या रोग्यांच्या पन्नास लाख रक्त नमुन्यांपैकी केवळ पाच हजार लोकांच्या रक्तात हिवतापाचे जंतू आढळून आले. एकूण हिवताप निर्मूलनाचे यशाचे शिखर नजरेच्या टप्प्यात होते.

त्यानंतर मात्र परिस्थिती विघडत जाऊन हिवतापाने डोके वर काढले. त्याला कारणेही तशीच होती त्यातील प्रमुख कारणे अशी (१) हिवतापाच्या डासांमध्ये डी.डी.टी. विरुद्ध निर्माण झालेली प्रतिकार शक्ती. (२) तेलाच्या जागतिक टंचाईमुळे निर्माण झालेला कीटकनाशकाच्या पुरवठ्याचा प्रश्न व कीटकनाशके आणि औषधे यांचा होणारा अपुरा आणि अवेळी पुरवठा. (३) लोकांकडून फवारणीस मिळणारा नकार तसेच घर फवारल्या वरोवर ते सारवून घेण्याची लोकांची सवय. (४) भटक्या व मजूर वर्गाच्या मोठ्या प्रमाणावर होणाऱ्या स्थलांतरामुळे हिवताप मुक्त विभागात होणारी रोगाची आवक (५) सुरुवातीला असलेल्या कोरड्या व हिवतापमुक्त क्षेत्रात निर्माण करण्यात आलेल्या कालव्यांच्या जाळ्यामुळे डासांच्या निर्मितीत झालेली प्रचंड वाढ. (६) नगरपालिका आणि महानगरपालिकातून विशेषतः ज्या मोठ्या शहरातून कीटकनाशके फवारणे अशक्य होते अशा ठिकाणी डासांच्या नाशाच्या उपाययोजनेकडे झालेले दुर्लक्ष. (७) कार्यक्रम जनतेला समजेल अशा रितीने तो त्याच्या समोर मांडण्याचे वावतीत आमची यंत्रणा अकार्यक्षम राहिली.



अशा सारख्या महत्वाच्या कारणांमुळे हिवतापाने वऱ्याच प्रमाणान पुन्हा डोके वर काढले आहे हे नाकारून चालणार नाही. या वावतीत १९७६ साली कीटकनाशकांचा वेळेवर पुर्वठा होऊन त्याचा उपयोग हिवताप गस्त भागातच करण्याचे ठरवून त्याचा जास्तीत जास्त फायदा मिळवण्यात आला. या शिवाय हिवतापाचे वाढलेले प्रमाण लक्षात घेऊन हिवतापाने एकही मृत्यु होणार नाही याची आणि हिवतापामुळे शेतीच्या उत्पादनावर परिणाम होणार नाही याची दक्षता घेण्यासाठी हिवतापावर अत्यंत उपयुक्त अशा क्लोरिन गोळ्यांचा साठा १९७५ साली हिवताप कर्मचाऱ्याव्यतिरिक्त प्रत्येक ग्राम पंचायत व शाळांमध्ये ठेवण्यात येऊन या गोळ्यांचे प्रमाण व घेताना काय खबरदारी घ्यावी या वद्दलच्या सूचना संबंधितांना देण्यात आल्या. त्याचा योग्य तो परिणामही दिसून आला.

याच्याच जोडीला पुणे जिल्ह्यातील शिरूर भागात प्रायमॅक्सीन गोळ्यांच्या कोणत्या प्रमाणाने हिवतापाच्या जंतूंचा पूर्ण नाश होऊ शकेल हे आजमावण्यासाठी प्रयोग करण्यात येत आहेत. कालव्यामुळे वाढलेल्या डासांच्या प्रश्नावर तोडगा म्हणून पुणे सोलापूर नगर औरंगाबाद व वीड जिल्ह्यात ठराविक भागात पावसाळ्याच्या आधी व नंतर पॅरिसीनचा प्रयोग करून डासांना त्यांच्या पाण्यातील अळीच्या अवस्थेतच नाहीसे करण्यासाठी प्रयोग करण्यात येऊन त्याचे परिणाम अजमावण्यात येत आहेत. मुंबई, पुणे, नागपूर या महानगरपालिकांमध्ये नेहमीचे डासांच्या अळीप्रतिबंधक उपाय चालू आहे. त्या शिवाय डास अळी भक्षक असलेले विशिष्ट गम्बुझीया, गप्पी जातीचे मासे सोडण्यात येऊन त्यांचेही परिणाम अजमावण्यात येत आहेत.

आरोग्य व कुटुंब नियोजनाच्या मध्यवर्ती समितीच्या तिसऱ्या सभेमध्ये देशातील हिवताप रोगाच्या वाढत्या प्रादुर्भावावद्दल चिंता व्यक्त केली गेली होती त्यानंतर देशातील हिवताप निर्मूलन योजना जास्त परिणामकारक करण्याकरिता केंद्र सरकारने या राष्ट्रीय योजनेची खालील प्रमाणे नव्याने आखणी केली. १) हिवताप निर्मूलनाच्या कार्यावर प्रभावी देखरेख करता यावी म्हणून सध्या अस्तित्वात असलेल्या पथकांचे पुनर्रिकरण करून जिल्ह्याच्या भौगोलिक सीमा व हिवताप पथकांच्या सीमा एक करण्यात येऊन जिल्हा आरोग्य

अधिकारी यांना या कार्यक्रमाची जबाबदारी देण्यात आली आहे. २) फवारणीचे कार्यक्रम ज्या ठिकाणी वार्षिक मलेरिया जंतू निर्देशांक २ किंवा त्यापेक्षा जास्त असेल अशा भागात करण्यात येतील. ३) मासिक सभेमध्ये हिवतापासंबंधी झालेल्या कामाचा आढावा घेऊन जिल्हा मुख्य कार्यकारी अधिकारी त्यांचा अहवाल गज्याच्या मुख्य सचिवांना सादर करतील. ४) विभागीय हिवताप यंत्रणेचेही पुनर्रिकरण करण्यात येईल ५) जनतेचे उत्स्फूर्त सहकार्य मिळवण्यासाठी आरोग्य शिक्षणाच्या यंत्रणेला चालना देण्यात येईल. ६) कीटक शास्त्राच्या अहवालावरून राज्याला देण्यात येणाऱ्या कीटक नाशकाचे प्रकार व प्रमाण ठरविण्यात येतील. ७) हिवतापावरील औषधी गोळ्या हिवताप कमेचारी प्राथमिक आरोग्य केंद्रे दवाखाने यांच्या व्यतिरिक्त ग्रामपंचायती डाक अधिकारी गावातील शाळा इ. ठिकाणी उपलब्ध होतील. ८) हिवतापासंधी संशोधन करण्यासाठी तरतूद करण्यात आलेली आहे.

**हत्तीपाय रोगप्रतिबंधक योजना** ज्या भागात हत्तीपाय (फायलेरिया) रोगाचे प्रमाण अधिक आहे अशा भागात या रोगाचा प्रसार करणाऱ्या क्युलेस जातीच्या डासांचा त्यांच्या पाण्यातील अळीच्या अवस्थेतच नाश करण्यासाठी त्यांच्या उत्पत्ती स्थानावर तेलाचे फवारे मारून उपाय केले जात आहेत. महाराष्ट्रात नागपूर भंडारा व चंद्रपूर आणि वसई या जिल्ह्यांमध्ये अशी पथके आहेत. या पथकाच्या कारवाईमुळे हत्तीपायाच्या प्रसाराला आळा बसला आहे यात शंकाच नाही. ही पथके हत्तीपायाचे रोगी शोधून काढून त्यांच्या वर औषधोपचारही करीत असतात.

**कुष्ठरोग व क्षयरोग** कुष्ठ रोग व क्षय रोग यांच्या सारख्या जुनाट रोगांचे नियंत्रण करताना रोगी लवकरात लवकर हुडकून काढने त्यावर वरेच दिवस योग्य उपचार करणे व या रोगाचे वावत आरोग्य विषयक शिक्षण जनतेला देऊन त्यांच्यातील गैरसमज दूर करणे या कार्यक्रमावर सध्या मोठ्या प्रमाणात भर देण्यात येत आहे. कुष्ठ रोगाला प्रतिबंध करण्यासाठी ३८ कुष्ठरोग नियंत्रण पथके ५९ शहरी कुष्ठरोग केंद्रे आणि ७२० परीक्षण, शिक्षण व उपचार केंद्रे महाराष्ट्रात स्थापन केली आहेत.

क्षय रोगाला प्रतिबंध करण्यासाठी मुंबई धरून २६ जिल्ह्यांत जिल्हा क्षयरोग केंद्रे स्थापन करण्यात



आली आहेत. प्रतिबंधक लस टोचण्यासाठी २४ जिल्ह्यांत वी.सी. जी. केन्द्दे स्थापन झाली असून हया मार्फत प्रतिवर्षी १६ ते १७ लाख लोकांना वी.सी.जी.लस टोचली जाते. याशिवाय प्राथमिक आरोग्य केन्द्दे दवाखाने वगैरे सारख्या हजाराहून अधिक संस्थामध्ये क्षय रोगाचे निदान करून त्यावर उपचार करण्याची सोय उपलब्ध केलेली आहे. एके काळी क्षयरोग हा महाभयंकर रोग समजण्यात येत असे. तो आता राहिलेला नाही यातच यश आहे.

**कॉलरा** हा एक अत्यंत तीव्र सांसर्गिक रोग असून तो सूक्ष्म अशा जिवानुमुळे दुपित झालेल्या अन्नातून व पाण्यापासून होतो. दुपित झालेल्या पाण्याचे निर्जंतुकरण व कॉलरा प्रतिबंधक लस टोचण्याचा कार्यक्रम दरवर्षी अमलात आणला जात असल्यामुळे कॉलराचे प्रमाण वरेच कमी झालेले आहे. १९६४ मध्ये १५९७६ रुग्णांना कॉलराची लागण होऊन त्यातील ५८२७ रोगी मृत्युमुखी पडले होते. परंतु १९७६ मध्ये केवळ २०५० लोकांना कॉलराची लागण होऊन त्यातील १४२ रोगीच दगावले हे चित्र वरेच वोलके आहे.

**घटसर्प, डांग्या खोकला व धनुर्वात** महाराष्ट्रात होणाऱ्या वालमृत्युच्या मुख्य कारणांपैकी हे तीन आजार आहेत. मातावाल संगोपनाच्या कार्यक्रमाचा एक भाग म्हणून आता प्रत्येक प्राथमिक आरोग्य केंद्रातून ५ वर्षाच्या आतील सर्व मुलांना वरील तीनही आजाराच्या विरोधी शक्ती निर्माण करणारी प्रतिबंधक लस टोचण्याचा कार्यक्रम आखून ती दक्षतेने पाळण्यात येत आहे. हया प्रकारच्या कार्यक्रमांच्या अंमलवजावणीमुळे महाराष्ट्रात वालमृत्युचे प्रमाण दर हजारी १८० वरून ७२ पर्यंत खाली आणण्यात आल्याला यश मिळाले आहे.

**प्लेग** ३०-४० वर्षांपूर्वी साक्षात यमदूत म्हणून दर एक दोन वर्षाआड साथीचे भयंकर स्वरूप धारण करून उभा राहणारा हा रोग आता इतिहासजमा झालेला आहे. १९३५ साली या रोगाने आपल्या राज्यात ११/७७९ वळी घेतल्याची नोंद आहे. तर १९४७ साली याच रोगापाई ३००० लोकांना आपला जीव गमवावा लागला होता. मात्र हिवताप प्रतिबंधासाठी १९५० सालापासून घगेघरी कीटक नाशकाचे फवारे मारण्याचे काम सुरू झाल्यापासून प्लेगचा प्रसार करणाऱ्या पिसवांचाही नाश होऊन “प्लेग” चा नुसताच प्रसार थांबला असे नव्हे तर १९५३ सालानंतर

राज्यात या रोगाचे नावही राहिले नाही ही वस्तुस्थिती आहे. प्लेगचे अखरचे दोन रोगी आणि दोन मृत्यु आपल्या राज्यात १९५२ साली नोंदविण्यात आले होते. हिवतापाच्या प्रतिबंधासाठी योजण्यात आलेल्या उपायांचा हा जनतेला मिळालेला दुहेरी फायदा म्हणावयास हरकत नाही. वरील कार्यक्रमांच्या जोडीला गुप्तरोग नियंत्रण खुपच्या रोग नियंत्रण असल्या राष्ट्रीय स्तरावरील कार्यक्रमांची अंमलवजावणीही आपल्या राज्यात करण्यात येत आहे आणि त्यात यशही मिळत आहे.

या वावतीत एक महत्वाची वाव येथे नमूद करणे आवश्यक आहे. ती म्हणजे सार्वजनिक आरोग्य खात्याचे मुख्य उद्दिष्ट “रोग्यावरील उपचारापेक्षा रोग प्रतिबंधक उपाय” चांगला (प्रिव्हेंशन इज बेटर दॅन क्युअर) या तत्वावर आधारलेले आहेत. अर्थात या तत्वातच आरोग्य खात्याला पावलो पावली तोंड घाव्या लागणाऱ्या अडचणीचा उगम आहे कारण माणूस एकदा आजारी पडला की सर्व साधारण पणे तो आपणहून रोगनिदानासाठी आणि उपचारासाठी डॉक्टरांकडे धाव घेतो. त्यावेळी डॉक्टर त्याला सांगतील ते सर्व करायला तो तयार असतो. पण एकदा का तो रोगमुक्त झाला की गरज सरो आणि वैद्य मरो या प्रसिध्द म्हणी प्रमाणे तो वैद्य मरो असे जरी म्हणत नसला तरी वैद्याचा उपदेश सोडस्करपणे विसरून आपल्या दैनंदिन कार्यक्रमात हरवून जातो. ही झाली रोग्याची कथा. आरोग्य खात्याला तर सर्वसामान्य जनतेस रोग होऊ नये म्हणून प्रत्येक गोष्ट करावी लागते. उदाहरणार्थ कॉलराची साथ येऊ नये म्हणून लस टोचणे. देवी येऊ नये म्हणून देवीची लस टोचणे. हिवताप येऊ नये म्हणून घरोघरी कीटक नाशकाची फवारणी करणे. अशा प्रत्येक वावतीत जनतेचे सक्रिय आणि मनःपूर्वक सहकार्याची आवश्यकता असते. हे सगळे करण्यासाठी आरोग्य खात्याचे कर्मचारी जनतेला त्यांच्या दृष्टीकोनातून गरज नसताना जनतेकडे जात असतात. त्यामुळे प्रत्येक वेळी प्रत्येक कार्यक्रमाला जनतेच्या उस्फूर्त सहकार्याची उणीव भासत गेली हे उघड सत्य आहे. जनतेचे सक्रिय सहकार्य मिळविण्यासाठी आरोग्य खात्याने सुरू केलेल्या प्रत्येक कार्यक्रमांची सांगोपांग माहिती आणि महत्व लोकांना समजेल अशा भाषेत समजावून सांगून त्यांच्याकडून अपेक्षित सहकार्याची यांना जाणीव करून देण्यासाठी आरोग्य शिक्षण यंत्रणा कार्यक्षम असणे अत्यंत आवश्यक आहे. त्यासाठी प्रयत्न



सुरू असतानाच प्रत्येक खंड्यातून गावातून जनतेवर प्रभाव पडू शकतील असे एक पुरुष व एक स्त्री निवडून काढून त्यांना आरोग्य खात्याच्या कार्यक्रमाचे आवश्यक तेवढे शिक्षण देऊन समाज स्वास्थसेवक म्हणून त्यांच्याच गावी त्यांची नेमणूक करण्याचा एक नाविन्यपूर्ण कार्यक्रम ठाणे जिल्ह्यातील “पडधा” प्राथमिक आरोग्य केंद्राच्या परिमरात प्रयोगादाखल सुरू करण्यात आला आहे. हे समाज स्वास्थ सेवक आणि सेविका त्या त्या गावातीलच असल्या कारणाने आरोग्य खात्याच्या कार्यक्रमाच्या माहितीवद्दल आणि अपेक्षित सहकार्यावद्दल सर्व सामान्य जनतेत आणि आरोग्य खात्याच्या कर्मचाऱ्यांमध्ये जी एक वैचारिक विपमता राहत असे ती सहज भरू काढू शकतील अशी अपेक्षा आहे. इतकेच नव्हे तर हे सर्व आपलेच आणि आपल्याचसाठी असलेले कार्यक्रम आहेत हा संदेश घरोघरी पोहचवून प्रतिबंधक उपायांना गांवागांवातून मनःपूर्वक प्रतिसाद मिळवून देतील अशीही खात्री आहे. असाच एक कार्यक्रम पुणे जिल्ह्यातील वडू बुद्रुक या गावी महाराष्ट्र शासन पुणे जिल्हा परिषद आणि के.ई.एम.हॉस्पिटल पुणे यांच्या संयुक्त प्रयत्नाने सुरू करण्यात आला असून त्यात १९ गावांचा समावेश करण्यात आला आहे. या दोन्ही कार्यक्रमांचे परिणाम जनतेने उचललेली जबाबदारी आणि यश याचा अभ्यास करण्यात येत आहे.

**बहुउद्देशीय आरोग्य सेवा** गेल्या अनेक वर्षांच्या अनुभवावरून एक महत्वाची गोष्ट शासनाच्या नजरेस आली ती म्हणजे आरोग्य खात्याच्या निरनिराळ्या योजनांचे कर्मचारी गावांना भेटी देऊन केवळ आपल्या कार्यक्रमांचे वावतीतच जनतेची सेवा करत असत. एखाद्या हिवताप कर्मचार्याला डोकेदुखीचे औषध अथवा अन्य सामान्य रोगावर औषध आहे का असे विचारल्यास त्याला नकारार्थी उत्तर द्यावे लागत असे अशीच परिस्थिती इतर कर्मचाऱ्यांचे वावतीत घडून येत असे.

एवढ्यासाठी शासनाने महाराष्ट्र राज्यात बहुउद्देशीय आरोग्य सेवा योजना सुरू करण्याचे ठरविले. त्या दिशेने पुणे नागपूर नाशिक आणि औरंगाबाद

जिल्ह्यात ठराविक भागात ही योजना प्रयोगादाखल गेली वर्षभर सुरू असून त्याचे परिणाम आशादायक आहेत. या योजनेखाली आरोग्य खात्याच्या विविध सेवा योजनांच्या कर्मचाऱ्यांना प्रत्येक कार्यक्रमाचे शिक्षण देण्यात येऊन त्या प्रत्येकाला झेपेल इतक्याच लोकसेवेसाठी नेमण्यात येऊन हा कर्मचारी आरोग्य खात्याच्या सर्व महत्वाच्या कार्यक्रमांचे उदाहरणार्थ हिवताप कॉलरा देवी इ. द्वारा त्याच्या क्षेत्रातील जनतेची उत्तम प्रकारे सेवा करू शकेल अशी शासनाला खात्री वाटते. भविष्य काळात बहुउद्देशीय सेवा योजना आणि समाज स्वास्थ सेवक योजनांचा समन्वय होऊन आरोग्य खात्याच्या सर्व योजना जनतेला पूर्ण लाभ मिळवून देतील यात शंकाच नाही.

वर्षानुवर्षाच्या परिश्रमामुळे मिळत गेलेल्या अनुभवाची शिदोरी सोवतीला घेऊन नवनवीन शास्त्रीय शोधांच्या प्रकाश झोतांच्या मार्गदर्शनाखाली सार्वजनिक आरोग्य खाते जनतेच्या स्वास्थ सेवेच्या मार्गावर अग्रेसर होत आहे. जनतेच्या सुधारलेल्या राहणीमानाची आणि उंचावलेल्या वैचारिक पातळीची साथ मिळून आजवर मिळालेल्या यशापेक्षाही उज्वल असे यश आपल्याला संपादन करता येईल याची खात्री वाटते. राहता राहिली ती शेवटची पण सगळ्यात महत्वाची गोष्ट आणि ती म्हणजे वेफाम वाढणाऱ्या लोकसंख्येची. आरोग्य खात्याच्या आजवरच्या परिश्रमांना मिळालेल्या यशामुळे कमी झालेल्या मृत्युचे आकडे आणि दिलासा देण्याइतपत वाढलेली आयुमर्यादा, यांच्या संयुक्त परिणामामुळे, स्वातंत्र्य प्राप्तीनंतरच्या या तिसऱ्या दशकात वेफाम वाढत असलेल्या लोकसंख्येचे फुगीर आकडे, एक भयानक चित्र आपल्या नजरे समोर उभे करतात. अर्थात आता जागृत झालेली आपली जनता यानंतर हया लोकसंख्या वाढीला, निसर्गाचा समतोल विघडून टाकणाऱ्या ठराविक लक्ष्मण रेषेच्या पलिकडे जाऊ देणार नाही. उलट त्या आधीच कुटुंब कल्याण योजनेचा मनःपूर्वक स्वीकार करून जनस्वास्थाच्या कार्यक्रमांमध्ये मिळविलेल्या यशाच्या गोड फळांचा आस्वाद घेण्यासाठी योग्य ते वातावरण निर्माण करेल यावद्दल शंकाच नाही.



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## पाणी पुरवठा

आपल्या जीवनाला हवेच्या खालोखाल पाण्याची आवश्यकता आहे. पाण्याची आणि जीवनाची फारकत होऊ शकत नाही. मनुष्यप्राणी आपले भटके जीवन सोडून स्थाईक होऊ लागला तेव्हा जीवनक्रमात अत्यावश्यक असलेल्या पाण्याजवळ तो वस्ती करू लागला कालांतराने लोकसंख्या वाढू लागली आणि पाण्याची टंचाई भासू लागली. पुणे शहर एके काळी मुवलक पाण्याकरीता प्रसिद्ध होते. वाढत्या लोकसंख्येमुळे त्याच पुण्यात आज मुवलक पाणी किती प्रमाणात मिळतय याची आपल्याला कल्पना आहेच.

पाण्याचे अनेक उपयोग आहेत. आपल्या शरीराचा ७० टक्के भाग केवळ पाणी आहे. शरीराच्या सर्व क्रिया पाण्याशिवाय अशक्यप्राय असतात. तथापि अन्न आणि पिण्याचे पाणी याशिवाय इतर अनेक कामासाठी पाण्याची गरज असते. आपले शरीर कपडे आणि घर यांच्या स्वच्छतेसाठी कितीतरी पाणी लागते. रस्त्यावर पाणी शिंपडणे मैल्याची आणि इतर घाणीची विल्हेवाट लावणे अशी अनेक सार्वजनिक कामे पाण्याशिवाय अडून राहतील. पोहण्याचे तलाव काराखाने आणि उद्योगधंदे पाण्याशिवाय चालणार नाहीत. पाण्यावाचून आपले जीवन केवढ्या मोठ्या प्रमाणात विस्कळीत होते याचा सर्वांनाच अनुभव आहे.

जनतेचे स्वास्थ आनंद आणि कर्तृत्व आरोग्यात सामावलेले असते. आरोग्यसंवर्धनाकरीता भरपूर आणि शुद्ध पाणी पुरवठ्याचे महत्व फार आहे. कल्याणकारी राज्यासाठी आपण दोन पंचवार्षिक योजना पार पाडल्या आहेत. पहिल्या योजनेत ४९ आणि दुसऱ्या योजनेत ७६ कोटी रुपये पाणीपुरवठा आणि तत्समयोजनांकरता खर्च झाले. तिसऱ्या योजनेच्या काळात आणखी १०५ कोटी रुपये मंजूर झाले आहेत. त्यातील जवळ जवळ १६ कोटी रुपये महाराष्ट्रात खर्च केले जातील. पिण्याच्या पाणीपुरावठ्याची सार्वजनिक व्यवस्था नसलेल्या ३१०० खेड्यांत नव्या विहिरी खोदण्यात येतील त्यामुळे अशा खेड्यांपैकी निम्मा खेड्यात पिण्याचे पाणी मिळू लागेल.

पाणी जीवनाला अत्यावश्यक खरे पण ते दुपित असेल अशुद्ध असेल तर आरोग्याला अपायकराक ठरते. विपमज्वर पटकी आंव हगवण जंत नारू कावीळ पोलिओ इत्यादी अनेक रोग दुपित पाणी प्यायल्याने होतात. असे दुपीत पाणी दिसावयाला घाण किंवा गढूळ असतेच असे नाही. चांगले स्वच्छ दिसणारे थंडगार पाणी दुपीत असल्याचे आढळून आले आहे (स्वच्छ दिसणारे पाणी नेहमी शुद्ध असते ही समजूत चुकीची आहे.)

पाऊस हाच सर्व पाण्याचे मूळ. पावसाचे पाणी स्वच्छ असते. मग हे पाणी दूपीत होते तरी कसे? पाऊस पडला म्हणजे ओढेनाले वाहू लागतात. त्यांच्या पुढे नद्या वनतात. पाणी जमिनीवरून वाहत असताना ठिकठिकाणची घाण मलमुत्र वगैरे धुतली जातात व पाणी दूपीत होते. नदीचा उपयोग स्वच्छतेसाठी व घाणीची विल्हेवाट लावण्याकरिता केला जातो. कित्येक मोठ्या शहरात मलमुत्र नदीत सोडतात. अयोग्य वापरामुळे तळ्याचे पाणी पिण्याचे दृष्टीने दूपीत असते. पावसाचे सर्व पाणी वाहून जात नाही. वरेच पाणी जमिनीत मुरते. पाणी जमिनीत झिरपताना त्यातली तरंगणारी दूपीत द्रव्ये वरच राहतात. त्यामुळे विहिरीतले पाणी साधारणपणे अशुद्ध नसते. मात्र हयाला एक मोठा अपवाद आहे. मोठ्या शहरातून सांडपाणी आणि मलमुत्रांकरतां जमिनीतून नळ टाकतात ड्रेनेजचे हे पाणी नळातून नेहमीच वाहेर येते आणि जमिनीत झिरपते त्यामुळे अशा शहरांतील विहिरीचे पाणी पिण्यास दूपीत असते. पुण्यासारख्या शहरात शेकडा ९९ विहिरीचे पाणी पिण्यास अयोग्य असते. खेड्यातल्या विहिरीचे पाणी मुळात चांगले असते. परंतु त्या विहिरीचा योग्य वापर होत नाही. देर आणि वादल्या अस्वच्छ असतात. अंधोळ व इतर शारिरीक विधी विहिरीच्या काठावर किंवा जवळपास केले जातात. तसेच संडास मोऱ्या गोठे विहिरीच्या फार जवळ असतात. कित्येक विहिरींना पायऱ्या अमतात व लोकांना पाण्यात उतरता येते. ह्या सर्व कारणांमुळे विहिरीचे पाणी दूपीत होते.



ओढे नद्या तळी आणि विहिरी हीच आपली पाणीपुरवठ्याची मुख्य केंद्रे. हेच पाणी जर दूषित असते अपायकारक असते तर कसले तरी काय? प्रथम पाणी दूषित होण्याचे मार्ग बंद करावे हे महत्वाचे काम कठिण असते. वेळेच्या अभावी याचे विवेचन शक्य होणार नाही एकच उल्लेख करावासा वाटतो की विहिरीला बांध घालावा आणि पाणी काढण्याकरता पंप अथवा एकच सार्वजनिक दोर आणि वादली ठेवावी. विहिरीपासून २० मीटर अंतराचे आंत संडाम मोगी किंवा गोटा बांधू नये आणि त्या जागेत पाण्याचा कोणताच वापर करू नये. निवडणूकीच्या वेळी मतदान केंद्रापासून ३५ मीटरवर सर्व वाजूंना मर्यादा आखून त्याचे आंत प्रचार करून देत नाहीत. त्याच प्रमाणे प्रत्येक विहिरीपासून २० मीटरवर एक रेपा आखावी आणि त्याचे आंत कोणत्याही प्रकारे पाणी न वापरण्याचे आणि घाण न करण्याचे बंधन आपण सर्वांनी स्वतःवर घालून घेतले पाहिजे. अशा लक्ष्मणरेपेची मर्यादा पाळली तर स्वच्छ पाणीपुरवठ्याचा प्रश्न एकही पैसा खर्च न करता मोठ्या प्रमाणात सोडवता येईल.

पिण्यासाठी शुद्ध व मुबलक पाणी पुरवण्यासाठी सरकारने अनेक योजना हाती घेतल्या आहेत. ह्या योजनेची अनेक अंगे असतात. प्रथम भरपूर पाणी उपलब्ध करावे लागते. यासाठी नैसर्गिक तळी बांध घालून तयार केलेले तलाव नद्या आणि विहिरी वापरतात. ही पाण्याची केंद्रे स्वच्छ ठेवली जातात. कित्येकदा पाणी सहज उपलब्ध असते आणि मोठाले पोलादी नळ टाकून ते लावून आणावे लागते. या कामातच मोठा खर्च होतो. पाणीपुरवठ्यातला दुसरा टप्पा म्हणजे पाणी शुद्ध करणे. ह्याकरता वरेच तांत्रिक साहाय्य घ्यावे लागते पाणी प्रथम साठवतात. त्यामुळे तरंगणारी वरीच घाण खाली वसते. पाणी गढूळ असेल तर त्याला तुरटी लावतात. नंतर पाणी वाळूच्या मोठ्या गाळणीतून गाळले जाते वाळूची हि गाळणी इतकी कार्यक्षम असते की सूक्ष्म रोगजंतू सुद्धा त्यात अडकून राहतात. मात्र अशा वाळूच्या गाळणीवर योग्य देखरेख ठेवावी लागते. शेवटी क्लोरीन नावाचा वायू पाण्यात मिसळतात क्लोरीनमुळे पाण्यातले रोगजंतू मरतात. शुद्ध केलेले हे पाणी नळाद्वारे घरोघर पोचविले जाते. असे शुद्ध केलेले पाणी

उपलब्ध नसले तरी आपण हताश होऊन स्वस्थ वगण्याचे कारण नाही. विशेषतः दूषित पाण्यापासून होणारे रोग पसरू लागले की पाणी घरोघर शुद्ध करणे अगत्याचे असते. तीन मडक्यांची गाळणी आणि पोटॅशियम परामॅंगनेटचा वापर हे दोन्ही उपाय अवलंबून राहण्याजोगे नसतात. त्यात धोका असतो. तसेच बाजारात मिळणाऱ्या वेगवेगळ्या प्रकारच्या घर्गुती गाळण्या सर्गस वापरण्याच्या दृष्टीने निरूपयोगी असतात.

पाणी गढूळ असल्यास अगदी थोडी तुरटी लावावी. काही तासांत घाण खाली वसते. स्वच्छ पाणी वरच्यावर काढून घ्यावे. मात्र असे स्वच्छ पाणी निर्जंतुक नसते. पाणी उकळून थंड करून घेणे हा रामबाण उपाय आहे. त्याने त्रासाचा असल्याने रोजच्या रोज पाणी उकळण्याचा खटाटोप फार दिवस करणे सर्वाना शक्य नसते. त्यामानाने क्लोरीन वापरणे सोपे. घरांत क्लोरीन वापरण्याचे उत्तम आणि सोईस्कर साधन म्हणजे बाजारात मिळणारे क्लोरोजेन. ह्या द्रावाचा प्रमाणात उपयोग करावा लागतो. आता सांगितलेले कोणतेच उपाय शक्य नसतील तर एक शेवटचा उपाय आहे तो म्हणजे पाणी साठवणे. पाणी मोठ्या आणि स्वच्छ पिंपात २ ते ३ दिवस झाकून ठेवावे. यामुळे पाण्यातली तरंगणारी घाण खाली वसते. साधारणपणे रोगजंतू पाण्यामध्ये वाढत नाहीत. त्याचे आयुष्य पण थोडे असते. त्यामुळे पाणी काही दिवस साठवले तर बहुतेक रोगजंतू मरून जातात. असे साठवलेले पाणी निर्जंतुक केलेल्या पाण्याइतके शुद्ध नसते तरी त्यातील रोगजंतूचे प्रमाण अत्यंत कमी झालेले असते. म्हणून दुसरे काहीच करणे शक्य नसले तर पिण्याकरता ताजे पाणी न वापरता साठवलेले शिळे पाणी पिणे श्रेयस्कर. तिसऱ्या पंचवार्षिक योजनेत पाणीपुरवठ्याच्या अनेक योजना आपल्या सरकारने घेतल्या आहेत. परंतु चांगले पिण्याचे पाणी मिळवण्याचे उद्दिष्ट साधण्यासाठी केवळ सरकारवर विसंबून राहता कामा नये. तर त्यासाठी प्रत्येक अवस्थेत सर्व संबंधित संस्थांनी अशा योजना संयुक्तरित्या तयार करून त्यात परिणामकारक रीतीने एकसूत्रता आणणे जरूर आहे. स्थानिक संस्थांचे आणि जनतेचे जितके सहकार्य मिळेल तितके पाणीपुरवठ्याचे काम सोपे होईल.



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## पाण्याची सुरक्षितता

पाण्याला 'जीवन' हे दुसरे नाव आहे. एक वेळ अन्नावाचून काही दिवस जगणे शक्य होऊ शकते. पण तितके दिवस पाण्यावाचून जगणे शक्य नाही. आपले जीवन व आरोग्य या दोन्हीही गोष्टी पाण्यावर अवलंबून आहेत.

**पाण्याचे प्रमाण व दर्जा** पाण्याचा विचार करताना त्याचे प्रमाण व दर्जा या दोन्ही गोष्टी महत्वाच्या आहेत. पाणी भरपूर प्रमाणात उपलब्ध असल्यास शारीरिक स्वच्छता उत्तम राहून आरोग्यरक्षणास मदत होते. याउलट पाण्याच्या कमरतेमुळे अस्वच्छता व पर्यायाने अनारोग्य वाढीस लागते. पाण्याच्या दर्जाचा विचार करता त्यात विरघळलेले क्षार व तरंगणारे जंतू या गोष्टींचा विचार करावा लागतो. काही ठिकाणी उपलब्ध असलेले पाणी जास्त प्रमाणात क्षारयुक्त असते. यालाच आपण जड पाणी म्हणतो. जड पाणी पिण्याची संवय नसणाऱ्यांना त्या पाण्याने त्रास होऊ शकतो. जगातील काही भागात मुतखड्यांचे प्रमाण जास्त आहे व जड पाणी ही त्याला कारणीभूत असणाऱ्या अनेक गोष्टींपैकी एक गोष्ट असू शकेल असे समजले जाते. मात्र जड पाणी असणाऱ्या सर्वच भागांमध्ये मुतखड्यांचे प्रमाण जास्त आहे असे नाही. याचे कारण म्हणजे मुतखड्यांना कारणीभूत असणाऱ्या सर्व गोष्टी अद्याप ज्ञात नाहीत.

पाण्याचा दर्जा ठरवताना त्यातील जंतू हा एक मुद्दा ठरतो. पाण्यामध्ये अनेक प्रकारचे विपाणू जिवाणू एकपेशीय सजीव इ. असू शकतात. यातील थोडेच जीव जंतू माणसाला अपायकारक असतात. जुलाव पोलिओ कावीळ टायफॉईड (विषमज्वर) कृमी इ. रोगांचे जंतू पाण्यातून पसरतात. त्यामुळे पिण्याच्या पाण्याचा दर्जा या दृष्टिकोनातून पाहणे जरूरीचे ठरते.

**प्रदूषण कसे होते?** पाण्याचे प्रदूषण म्हणजे त्यामध्ये पिणाऱ्याच्या आरोग्यास घातक असे जंतू अथवा रासायनिक पदार्थ असणे. हे प्रदूषण होण्यास वऱ्याच अंशी माणूसच कारणीभूत असतो. एक प्रकारे माणसाचा सर्वात मोठा शत्रू माणूसच आहे. माणसाने पाणी वापरले की ते खराब होते. असे पाणी परत पिण्याच्या पाण्यात

मिसळले की प्रदूषण होते. अनेक कारखाने विपारी रसायने तशीच नदीच्या पाण्यात सोडत असतात. शहरातील वाढत्या लोकसंख्येचाही सुविधांवर ताण पडत असतो. वापरलेले पाणी तसेच मैलामिश्रित सांडपाणी काहीही प्रक्रिया न करता वऱ्याच वेळा नदीत सोडले जाते. त्यामुळे पाणी प्रदूषित होते. खेड्यांमध्ये विहिरीजवळच पाण्याचा वापर केला गेला तर ते पाणी विहिरीच्या तोंडातून आत जाते व विहिरीतील पाणी प्रदूषित होते. विहिरीभोवती १५ मीटर अंतरावर एक 'लक्ष्मणरेपा' आखून त्या रेपेच्या आत पाण्याचा कोणत्याही प्रकारे वापर करण्यात आला नाही तर विहिरीतील पाणी प्रदूषित होत नाही असे आढळून आले आहे. काही वेळा नैसर्गिकरित्याच पाणी दूषित असू शकते. उदा. काही भौगोलिक भागात जमिनीमधील पाण्यामध्ये आर्सेनिक फ्युओरिन अशी घातक रसायने असू शकतात. पाण्याचा साठा अयोग्य प्रकारे केला गेला तरी पाणी प्रदूषित होऊ शकते. पाण्याच्या टाक्या पिंपे वाटल्या जर स्वच्छ नसतील तर असे होण्याची शक्यता असते.

**स्वच्छ व सुरक्षित यातील फरक :** या ठिकाणी स्वच्छ पाणी व पिण्यासाठी सुरक्षित पाणी यातील फरक समजावून घेणे जरूरीचे आहे. डोळ्यांना अगदी स्वच्छ दिसणाऱ्या पाण्यात सूक्ष्म जंतू असू शकतात. तसेच काही वेळा पावसाळ्यात शहरांमध्ये पुरविले जाणारे पाणी जरासे गढूळ दिसते पण जर क्लोरिनेशन व्यवस्थित केले असेल तर ते पाणी सुरक्षित असू शकते.

**शहरातील परिस्थिती :** "अमूक एक ठिकाणी गॅस्ट्रो किंवा काविलीची साथ पसरली आहे". अशा बातम्या आपण वाचतो किंवा ऐकतो. पाण्याचे व सांडपाण्याचे पाईप्स शेजारी असतील व ते फुटले तर दूषित पाणी त्या भागास पुरवले जाते. म्हणजेच आधी फिल्टर व क्लोरिनेशन केलेले पाणी नंतर दूषित होऊन नळांमधून उपलब्ध होते. अशातून साथी उत्पन्न होतात. परंतु हे अपवाद वगळले तर शहरातील पाणीपुरवठ्याची एकंदरीत परिस्थिती चांगली आहे. याचे कारण म्हणजे बहुतेक मोठ्या शहरांमध्ये पाणी गाळून व क्लोरिनेशन



करून पुरविले जाते. त्यामुळे वन्याचशा प्रमाणात माती व रोगजंतू पाण्यातून नाहीसे होतात. यामुळे कारणांमुळे शहरांमध्ये पाण्यातून पसरणाऱ्या रोगांच्या साथी सर्व साधारणपणे होत नाहीत. भारतातील शहरांचा विचार केला तर पुण्याला पुरविले जाणारे पाणी सर्वोत्तम आहे असे म्हणावे लागेल. अर्थात पाणी कितीही चांगले असले तरी अस्वच्छता हात न धुणे उघडयावरचे खाणे संवय नसलेले खाणे इ. कारणांमुळे मात्र पोट विघडू शकते.

**पाण्यातून पसरणारे विकार कसे टाळता येतील?** शहरातील पाणीपुरवठा बहुतांशी नगरपालिका किंवा महानगरपालिकातर्फे केला जातो. यामध्ये पाणी गाळणे व क्लोरिनेशन या मुख्य प्रक्रिया असतात. या सरकारी व्यवस्थांवर सरासरी सामाजिक व वैयक्तिक सहभागही महत्वाचा आहे. पिण्याच्या पाण्याबाबत वैयक्तिक काळजी घेणे तर सर्वात महत्वाचे आहे उदा. हात स्वच्छ धुणे पाणी साठविण्याची व पिण्याची भांडी स्वच्छ ठेवणे इ. फिल्टर्स किंवा इतर काही साधने वापरत असल्यास त्या साधनांची योग्य तऱ्हेने काळजी घ्यावी. फिल्टर्स वेळेवर स्वच्छ न केल्यास त्यांची पाणी शुद्ध करण्याची क्षमता कमी होत जाते व काही वेळा त्यात जंतूंची वाढ होऊन उलट वाहेर पडणारे पाणी अधिक अशुद्ध झालेले असते हे शास्त्रीय अभ्यासातून सिद्ध करण्यात आले आहे. आपण वापरत असलेल्या फिल्टर्सची नीट माहिती करून घ्यावी अन्यथा त्यांपासून फायद्याऐवजी तोटाच होऊ शकतो. उदाहरणार्थ: कॅडल असणाऱ्या फिल्टरमधील कॅडल स्वच्छ केल्यावर नीट वसवता आली नाही तर पाणी तिच्या वाजूने वाहेर पडते. पाण्याचा प्रवाह वाढलेला दिसला की फिल्टर चांगला स्वच्छ झाला आहे अशी समजूत करून घेतली जाते. प्रात्यक्षात मात्र पाणी गाळले न जाताच वाहेर येत असते.

**वैयक्तिक काळजी :** पिण्याचे पाणी सुरक्षित नसेल तर त्यापासून आरोग्यास धोका पोहोचतो ही जाणीव लहान वयापासून निर्माण व्हायला हवी. अर्थात या गोष्टीचा जास्त वाऊ मात्र करू नये. पाण्याच्या सुरक्षिततेबद्दलची माहिती वन्याचवेळा वृत्तपत्रांमधून येते. विशेषतः पावसाळ्यात आरोग्यधिकारी पाणी उकळून व गाळून घेण्याचे आवाहन करतात. अशा सूचना जरूर पाळाव्या. परंतु एवढी नळांमधून मिळणारे पाणी सुरक्षित असेल तर ते फिल्टर करणे उकळणे याची जरूर नाही.

**पाण्याची तपासणी :** पाण्याबद्दल काही शंका असल्यास पब्लिक हेल्थ लॅबोरेटरीमधून पाण्याचे परीक्षण करून ते सुरक्षित आहे अथवा नाही हे जाणून घेता येते. अशी तपासणी महाविद्यालये विद्यापीठे यांच्या प्रयोगशाळांमध्ये सुध्दा होऊ शकेल. इतकेच काय पाण्यात जंतू आहेत का व असल्यास त्यांचे प्रमाण किती याचे परीक्षण पॅथॉलॉजिस्टसुध्दा करून देऊ शकतील.

**फिल्टर्सविषयी थोडेसे** फिल्टर्सचे अनेक प्रकार बाजारात उपलब्ध असतात. त्यांच्या उपयुक्ततेविषयी बरेच दावे केले जातात. परंतु त्यांच्या मर्यादाविषयी सर्वसामान्य लोकांना सहसा माहिती उपलब्ध होत नाही. उदाहरणार्थ सिरॅमिक फिल्टर्समधून फक्त मोठे कण गाळले जातात जंतू व विपाणू गाळले जात नाहीत. सिल्व्हर इंप्रेग्रेटेड फिल्टरमधील सिल्व्हरमुळे जंतू मरत असल्याचा दावा असला तरी ही क्षमता कायम स्वरूपाची असतेच याबाबत खात्रीशीर माहिती उपलब्ध नाही. तसेच सिल्व्हरचे ऑक्सिडेशन झाल्यानंतर फिल्टरची क्षमता कमी होते. हॅलोजन डोसिंग सिस्टिममधील क्लोरिन किंवा आयोडीनमुळे दुप्परिणाम होऊ शकतात. तसेच घरगुती वापरासाठीचे अल्ट्राव्हायोलेट किरणांवर आधारित फिल्टर जंतूंना मारण्यासाठी जेवढी तीव्र शक्ती लागते तेवढी देऊ शकत नाहीत असे तज्ज्ञांचे मत आहे. पाण्यातील मातीच्या कणांचे जंतूभोवती आवरण तयार झाल्यास जंतूला किरणांपासून संरक्षण मिळते. तसेच या किरणांनी जंतूंची स्पोर्स नष्ट होऊ शकत नाहीत. जास्त वेगाने पाणी गेले तर किरणांना पुरेसा अवधी मिळत नाही.

**“शिळे” पाणी अधिक चांगले?** पाण्याच्या बाबतीत एक गैरसमज असा असतो की ताजे पाणी चांगले त्यामुळे श्तेर दिवस साठविलेले पाणी फेकून “नवे” ताजे पाणी पिण्यासाठी साठवले जाते. ही पद्धत बरोबर नाही. पाण्यात आढळणारे जंतू परोपजीवी असतात. त्यांचा जीवनक्रम चालू ठेवण्यासाठी त्यांना अन्य प्राण्यांच्या शरीरात प्रवेश करावा लागतो. नुसते पाण्यात राहिल्यास कालांतराने ते आपोआप मरतात. जर पाणी स्वच्छ भांड्यात साठवून झाकून ठेवलेले असेल तर ४८ तासांनंतर त्यातील जंतूंची संख्या ६०% ते ७०% कमी होते व ७२ तासांनी ती ९०% पर्यंत कमी होते. त्यामुळे शिळे पाणी फेकू नये.



**फिल्टर्सना एक पर्याय :** पूर्वी पिण्याचे पाणी तांब्यांच्या कळशीत अथवा भांड्यात ठेवून मग पिण्यासाठी वापरण्याची प्रथा होती. या पद्धतीला शास्त्रीय आधार आहे. सोने तांबे व चांदी या तीन धातूंमध्ये पाण्यातील जंतू मारण्याचा गुणधर्म आहे. याला ऑलिगोडायनॅमिक ॲक्शन असे म्हणतात. असे म्हटले जायचे की राजाने सोन्याच्या भांड्यातून, सरदार व श्रीमंतांनी चांदीच्या भांड्यातून व सर्वसामान्य जनतेने तांब्याच्या भांड्यातून साठविलेले पाणी प्यावे. आज अगदी तांब्याची कळशी वापरली नाही तरी पज्यापासून वनविलेली एक फॉईल पाणी साठविण्याच्या भांड्यात ठेवली तर त्याचा चांगला फायदा होतो. ७२ तास साठवलेल्या पाण्यातले ९०% जंतू आपोआप मेलेले असतात हे आपण पाहिले. हेच पाणी तांब्याची फॉईल ठेवलेल्या भांड्यात साठवले तर ही क्रिया अधिक लवकर होईल. फॉईल काळसर झाली तर साधारण महिन्यातून एक वेळा स्वच्छ करावी लागते. तांब्याच्या भांड्यात किंवा तांब्याचा पत्रा बुडवून ठेवलेल्या भांड्यात ४८ ते ७२ तास साठविलेले पाणी हे अतिशय सुरक्षित असते. त्या पिंपाची तोटी तळापासून थोडी वर असेल तर खाली साठलेला गाळही पिण्याच्या पाण्यात येत नाही. दोन पिंपामध्ये पाणी साठविल्यास व आलटून पालटून वापरल्यास ही पद्धत फिल्टरला एक उत्तम पर्याय ठरू शकते. पावसाळ्यात नळांमधून गढूळ पाणी येते. अशा वेळी केवळ तुरटी फिरवणे पुरेसे ठरते. रोज पाणी उकळण्याची किंमत व इंधनाची नासाडी ही योग्य नव्हे. तसेच त्यामुळे आपली पाण्यातल्या जंतूंचा प्रतिकार करायची शक्ती कमी होत जाते. मग वाहेर कुठे जंतूंचा प्रतिकार करू न शकल्याने लगेच जुलाव सुरू होतात. उकळण्याने पाण्याची चवही बदलते. पिण्याच्या पाण्याची योग्य तेवढीच पण फार वाऊ न करता काळजी घ्यावी. प्रवासात काय करावे? प्रवासात शक्यतो स्वतःची पाण्याची वाटली अथवा पाणपिशवी वाळगावी. चहा कॉफी वा गरम पेये पिण्यासाठी सुरक्षित असतात. सध्या प्लॅस्टिकच्या वाटल्यांमधून सर्वत्र मिळणारे मिनरल वॉटर किंवा एग्जेटेड सॉफ्ट ड्रिंक्स यापेक्षा सालीची फळे किंवा फळांचे रस आरोग्याच्या दृष्टीने स्वस्त व हितकारक आहेत. मिनरल वॉटरची मागणी वाढल्याने त्यामध्ये काही अप्रामाणिक धंदा करणाऱ्या लोकांनी प्रवेश केला आहे. मध्यंतरी

इंडिया टूडे या प्रसिद्ध नियतकालिकात मिनरल वॉटरच्या विविध कंपन्यांच्या नमुन्यांच्या तपासणीचा रिपोर्ट आला होता. त्यानुसार मिनरल वॉटर हे सुरक्षित असेलच असे नाही असेच अनुमान काढावे लागते. काही व्यापारी वनावट वाटल्यांमध्ये पाणी भरून ते विकून फायदा मिळवत असण्याची शक्यता नाकारता येत नाही. स्वतःची वाटली वाळगणे शक्य नसेल तर क्लोरोजेन गोळ्या किंवा मेडिकलोर सोल्युशन यांचा वापर करून पाणी निर्जंतुक करून प्यावे. यामध्ये हायपोक्लोराईट मुळे पाणी निर्जंतुक होते. बोअरवेलच्या पाण्याबाबत काळजी शहरात काही ठिकाणी वोअरवेलचे पाणी वापरले जाते. अशी विहीर जर खोल म्हणजे खडकाच्या थराच्या खालपर्यंत असेल तर तिचे पाणी सुरक्षित असते. या विहीरीत पाणी जमा होताना ते मातीतून गाळूनच जमा होते. मात्र वोअरच्या नळीच्या वाजूने वापरलेले पाणी खाली झिरपत असेल तर पाणी दूषित होऊ शकते. असे होऊ नये म्हणून व्यवस्थित ग्राउटिंग करणे आवश्यक असते. विहीर उथळ असली तर पाणी दूषित होऊ शकते. अशा वेळी सुरुवातीस एकदा व नंतर ठराविक काळानंतर हे पाणी पब्लिक हेल्थ लॅबोरेटरीमधून तपासून घेणे आवश्यक आहे. वोअरिंगचे पाणी जर जड असेल तर त्यातील क्षार कमी करण्यासाठी आयॉन एक्स्चेंज रेझिन्स वापरणारे एक नवीन तंत्र सध्या उपलब्ध आहे. या तंत्राचा वापर करून पाण्यात जास्त असणारे क्षार कमी करता येतात व काही क्षार वाढविताही येतात. हे तंत्र महाग असल्याने वोअरिंगचे पाणी वापरणाऱ्या अनेक कुटुंबांनी ते एकत्रितपणे घेतले तर परवडण्यासारखे आहे. **हॉटेल्स कॅंटीन्स वगैरे :** कॅंटीन्स किंवा हॉटेल्समध्ये एकाच वेळी मोठ्या प्रमाणावर अनेक लोक खात पीत असतात. या ठिकाणी पाणी साठवण्याची पिंपे टाक्या वारंवार स्वच्छ करणे आवश्यक आहे. फिल्टर आवश्यक आहेतच असे नाही. जुलाव उलट्या अशा केसेस झाल्या तर पाणी तपासून घेणे मात्र जरूरीचे आहे. **सामाजिक संस्थांचा सहभाग** सामाजिक धर्मदाय संस्था व क्लव या संस्थांनी पाणी ठराविक कालखंडानंतर तपासून घेण्याचा कार्यक्रम ठेवला तर त्याचा निश्चितच फायदा होईल. अशा तपासणीने पाण्यात काही दोष असल्यास त्वरीत उपाययोजनेने आरोग्यास निर्माण होणाऱ्या धोका टाळता येईल.



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## भेसळीचा प्रश्न

अपुणे पोपण ही एक भारतातील सामाजिक तथा आरोग्यविषयक महत्वाची अशी समस्या होऊन वसली आहे हे सर्वश्रुतच आहे. गरिबी, पोपणासंबंधीच्या शास्त्रशुद्ध ज्ञानाचा अभाव, अपुणे अन्न उत्पादन, व लोकसंख्येची स्फोटक प्रमाणातील वाढ या गोष्टी या परिस्थितीला कारणीभूत आहेत. मर्यादित आर्थिक साधनसामुग्री अज्ञान अन्न धान्याची टंचाई इत्यादींचाही पोपणावर अप्रत्यक्षरीत्या अनिष्ट परिणाम होतो कारण या परिस्थितीमुळे भेसळयुक्त पदार्थ वनविण्याच्या समाजविघातक कृत्यांना वाव मिळतो. विज्ञान आणि तांत्रिक प्रगतीमुळे आपण नित्याच्या जीवनात आणखी सुखसोयीचा उपभोग घेऊ शकतो तथापि आपण आपल्या आहाराची मात्र कोणत्याही शास्त्रीय कारणासाठी किंवा पोपण द्रव्यदृष्ट्या निवड करीत नाही. आपण आपला आहार परंपरा, आवडी निवडी, प्रतिष्ठा, याला अनुसरून तसेच सांस्कृतिक, आर्थिक, व मानसिक कारणानुसार ठरवतो. यामुळे वऱ्याच वेळा धार्मिक उत्सव व सामाजिक समारंभाच्या वेळी एखाद्या पदार्थाची किंमत वा लागणारे प्रमाण (किंवा दोन्ही) परवडत नसतानाही प्रत्येकाला ठराविक तऱ्हेच्या अन्नपदार्थाचा वापर करणे भाग पडते. या परिस्थितीचा गैरफायदा घेऊन समाजातील स्वार्थी समाज विरोधी प्रवृत्तींनी तुंवड्या न भरल्या तरच नवल

वरील कारणामुळे अन्न पदार्थाच्या भेसळीला उत्तेजन मिळते. आणि सध्या तर ही गोष्ट अगदी सर्रास चालते. हे आपण पाहतोच. अर्थात अशा प्रकारची फसवणूक व वृत्ती पुरातन काळापासून चालत आलेली आहे. तेव्हा डॉक्टरांनी (आणि समाजानेही) या भेसळीचा केवळ आर्थिक वा सौंदर्यदृष्ट्या विचार न करता आरोग्याच्या दृष्टीनेही विचार करण्याची वेळ आली आहे.

भेसळीमुळे पदार्थाचा दर्जा खालावतो व दर्जा खालावल्यामुळे पोपण द्रव्यांच्या दृष्टीने तो पदार्थ निकृष्ट ठरतो. उदाहरणार्थ केवळ दुधावर पोसल्या जाणाऱ्या अर्भकाला पाणी मिसळलेले वा मलई काढून घेतलेले दूध दिल्यास त्याला पुरेशा कॅलरीज मिळत नाहीत. परिणामतः वालकाची वाढ अपेक्षेप्रमाणे होत नाही. त्याचप्रमाणे

खाद्यपदार्थात साखरेऐवजी कृत्रिम गोडी आणणारे पदार्थ वापरल्यास त्या खाद्यपदार्थातील उत्साहवर्धक पणा खूपच कमी होतो.

अन्नभेसळीचे अनेक घातक प्रकार आहेत. दुधात मिसळलेले पाणी दूषित असले तर अपुऱ्या पोपणावरोवरच वालकाला अतिसार वा टायफॉईड यासारखे रोग होऊन त्याची प्रकृती आणखीच ढासळते. नीरेमध्ये गटाराचे पाणी मिसळल्यामुळे मागे एकदा पुण्यात कॉलच्याची साथ उद्भवली होती. १९६९ मध्ये पुण्यात २९० लोकांना पायसुजीचा रोग झाला होता. भूईमुगाच्या तेलात आरगेमॉनच्या वियांच्या तेलाची भेसळ करण्यात आल्यामुळे हा रोग उद्भवला होता. हे दुखणे अनेकांना अनेक महिने सोसावे लागले. ग्लुकोमा (डोळ्यांचा गंभीर आजार) होऊन अंधत्व येण्याचा किंवा कॅन्सर होण्याचाही धोका पण पत्करावा लागला होता. एखाद्या पदार्थात भेसळ केली जाते तेव्हा त्या पदार्थातील महत्वाचे सत्वयुक्त द्रव्य काढून घेतले जाते. उदाहरणार्थ दुधातून मलई काढणे. मसाल्याच्या पदार्थातून तेल हलक्या प्रतीचा माल रंग वगैरे वापरून किंवा वेमालूमपणे मिसळून अन्नपदार्थ आकर्षक वनविण्यात येतो.

या समाजविघातक गोष्टीचे आपल्याला कसे उच्चाटन करता येईल? असे उच्चाटन करण्याची जबाबदारी सरकारवरोवर जनतेची आहे. वरेच लोक (त्यात काही प्रतिष्ठीतही आहेत) सर्वस्वी सरकारनेच या भेसळीचा वंदोवस्त केला पाहिजे असे म्हणतात. सरकारने यासाठी कायदे केले आहेत व त्याची अंमलवजावणी करण्यासाठी यंत्रणाही उभी केली आहे. तथापि आपल्या या कल्याणकारी राज्यात अन्नभेसळीचा यशस्वी रीत्या प्रतिबंध करावयाचा असेल तर जनतेनेही योग्य ती माहिती पुरवून आणि खाली दिलेले उपाय योजून सरकारला सहकार्य दिले पाहिजे.

भेसळ करण्यासाठी वापरले जाणारे पदार्थ कोणते याची आपल्याला जाणीव असली पाहिजे आणि भेसळ कशाप्रकारे करण्यात येते त्याचीही माहिती असली पाहिजे. यासाठी लोकांना अन्नभेसळीचे ज्ञान करवून



देणारी आरोग्यविषयक प्रदर्शने वारंवार आयोजली गेली पाहिजेत व असेच इतर उपक्रम केले पाहिजेत. ज्यावेळी एखादा अन्नपदार्थ अत्यंत स्वस्त (वाजार भावापेक्षाही) मिळतो त्यावेळी तो भेसळयुक्त व अनारोग्यकारक आहे हे आपण जाणले पाहिजे. अशा वेळी वस्तू स्वस्त मिळते म्हणून ती डोळे झाकून घेऊ नये किंवा आपले नशिव चांगले म्हणून स्वस्तात मिळाली असे समजू नये. त्यासंबंधीची माहिती आरोग्य अधिकाऱ्याला किंवा पुण्यातील मध्यवर्ती सार्वजनिक अन्न व आरोग्य प्रयोगशाळेला कळवावी. आपण कृत्रिम रंग न लावलेले सकस पदार्थ वापरावेत. पिवळा रंग दिलेली डाळ किंवा हिरवा रंग लावलेले वाटाणे चांगले दिसतात म्हणून घेऊ नयेत कारण त्यापासून आरोग्याला धोका संभवतो.

आपल्या लाडक्या मुलांसाठी आपण स्वस्तात मिळणारी मिठाई कधीही घेऊ नये कारण त्यात कायद्याने बंदी केलेले असे प्राणघातक रंग वापरलेले असतात. मकरसंकान्त व गुढी पाडव्याला साखरेच्या माळा वनविण्याची पद्धत आहे. पदके वनविणारे लोक त्यात घातक असा रंग वापरतात ज्याला परवानगी नाही अशा पिवळ्या रंगाचा वापर केल्यावरून अनेकांना यापूर्वी शिक्षा झाल्या आहेत. १९७१ मध्ये पुण्याच्या महानगरपालिका

आरोग्य अधिकाऱ्यांनी ही पदके वनविण्याच्यांनी हा रंग वापरू नये म्हणून त्यांचे मन वळविले आणि म्हणून त्या वर्षी सर्व पदके पांढऱ्याच रंगाची वनविण्यात आली. आश्चर्याची गोष्ट म्हणजे एका जबाबदार नागरिकाने स्थानिक वृत्तपत्रात रंगीत पदके मिळाली नाहीत म्हणून कडक टीका केली होती.

आपला आहार रुचकर वनविण्यासाठी आपण मसाल्यांवर खर्च करतो. परंतु यापैकी वरेच पदार्थ भेसळयुक्त असू शकतात. म्हणून वाजरातून तयार मसाले न घेणे उत्तम. पूर्वी आपल्याकडे हीच पद्धत रूढ होती.

आपली मिळकत मर्यादित असली तरी आरोग्यासाठी पौष्टिक आहाराची आपल्याला गरज आहे. तेव्हा आपण आपला पैसा आरोग्यदायी व खात्रीलायक पदार्थ खरेदी करण्यासाठी खर्च केला पाहिजे. स्वस्त आहेत म्हणून निकृष्ट पदार्थ विकत घेणे योग्य नाही. फिकट दिसणारे वाटाणे व डाळ रंग नसलेली मिठाई हे पदार्थ भारी किमतीच्या पदार्थाप्रमाणेच चांगले व चवीला तितकेच उत्तम असतात मग आपण त्यांचा वापर का करू नये? खर्च करायचा तो अन्नपदार्थावर करू या! विपावर नको!



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## मधुमेही शतायुशी भव

गेल्या ५०/६० वर्षांत वैद्यक शास्त्रात झालेल्या प्रगतीमुळे माणसाचे आयुष्यमान झपाट्याने वाढत आहे. संसर्गजन्य रोगाविरूद्ध प्रतिबंधक उपाय यशस्वी ठरत आहेत तसेच अपमृत्युचे प्रमाण कमी होत आहे. पण त्याचबरोबर साधारणतः प्रौढ वयांत होणाऱ्या हृदरोग रक्तदाव कर्करोग मधुमेह इत्यादि अनेक रोगांशी मनुष्याला झगडावे लागत आहे. मधुमेहाचे प्रमाण जगभर वाढत आहे. असंख्य माणसांचे वावतीत त्याचे निदानसुद्धा झालेले नाही. या महत्वाच्या प्रश्नाकडे लक्ष वेधण्याच्या दृष्टीने यावर्षी जागतिक आरोग्य दिनाचा विषय “मधुमेही शतायुषी भव” असा निवडलेला आहे. मधुमेह हा रोग नवीन नाही सुमारे १७०० वर्षांपूर्वी लिहलेल्या चरकसंहितेमध्ये मधुमेहाच्या लक्षणांचे वर्णन केलेले आहे. तसेच सुश्रुतानेही आपल्या ग्रंथात त्याचा उल्लेख केलेला आहे. पण त्या काळांत खाण्यापिण्याचे कडक पथ्य पाळण्याशिवाय इतर उपाय उपलब्ध नव्हते तसेच रोगाच्या प्रथम अवस्थेत मधुमेहाचे निदान करणे पण शक्य नव्हते. त्यामुळे रोग वळावत जाऊन मधुमेही व्यक्ति वेशुद्ध होत किंवा इतर गंभीर स्वरूपाच्या समस्या निर्माण होऊन अनेक रोगी त्यातच दगावत.

आता काळ बदललेला आहे. लवकर व अचूक निदान तसेच आहार नियमन व आधुनिक औषधे ह्या दुहेरी उपचारामुळे मधुमेह अवाक्यात ठेऊन त्यापासून होणारे गंभीर दुष्परीणाम टाळता येतात. मधुमेहाचे निदान न झालेले अनेक लोक भारतात आहेत निदान झालेले आणि न झालेले यांचे प्रमाण सुमारे एकास दहा असे आहे. पुढारलेल्या देशात हेच प्रमाण एकास एक आहे. प्राथमिक अवस्थेत निदान व उपचार करून हा रोग जर कावूत ठेवला नाही तर तो वळावतो. वेशुद्ध होणे अंधत्व मूत्रपिंड आणि मज्जासंस्थांचे विकार गळवे इत्यादी दोष उद्भवतात. इतकेच नव्हे तर हृदय आणि रक्तवाहिन्या यांचाही हळू हळू न्हास होऊ लागतो. म्हणून या रोगासंबंधी माहिती करून घेणे व त्याच्या अस्तित्वाविषयीची शंका दूर करणे आपल्या सर्वांनाच आवश्यक आहे. या दृष्टीने ३५ वर्षांवरील प्रत्येक स्त्री पुरुषाने विशेषतः वजन जास्त असेल किंवा कुटुंबात

अथवा जवळच्या नातेवाईकात मधुमेहाची वाधा झालेली असेल त्यांनी दरवर्षी आरोग्य तपासणी करून घ्यावी.

आपल्या शरीराची वाढ व हालचाल सुरळीतपणे चालण्यासाठी जी कार्यशक्ती आवश्यक असते ती शरीरातील पेशीत चालू असलेल्या ज्वलनामधून निर्माण होते. अन्नपचनात तयार झालेली ग्लूकोज साखर रक्तात शोषण केली जाते व सर्व पेशींना पुरविली जाते. स्वादुपिंडातील लॅंगरहॅन्स पेशींनी उत्पन्न केलेल्या इन्सूलिन या द्रव्याच्या मदतीशिवाय ग्लूकोजचे ज्वलन नीट होत नाही व शरीराला रक्तातल्या ग्लूकोज साखरेचा उपयोग करता येत नाही. हा दोष पिष्टमय पदार्थाच्या चयापचयातील विघाडामुळे होऊ शकतो व त्यालाच मधुमेह म्हणतात. इन्सुलिनच्या कमतरतेमुळे ग्लूकोजचे ज्वलन होत नाही. न वापरलेली साखर रक्तात साठते व तिचे प्रमाण जास्त वाढले तर मूत्रातून ती जाऊ लागते. योग्य उपाय केले नाहीत तर अगोदर उल्लेखलेले दुष्परीणाम होतात. आजपर्यंत केलेल्या अभ्यासावरून अनुवंशिकता लढपणा वैटेकाम व व्यायामाचा अभाव इत्यादी गोष्टींचा मधुमेह होण्याशी घनिष्ट संबंध आहे असे सिद्ध झाले आहे. आधुनिक चिकित्सेमुळे मधुमेहाचे उपद्रव व मृत्युचे भय पूर्वी इतके राहिलेले नाही. मधुमेही व्यक्तींचे जीवन इतरांप्रमाणेच कार्यक्षम व सुखी राहू शकते. पण यासाठी उपलब्ध असलेल्या शास्त्रीय व साधार ज्ञानाचा व्यवहारात उपयोग करणे व त्याचे काटेकोरपणे पालन करणे आवश्यक आहे. एक महत्वाची गोष्ट म्हणजे मधुमेही माणसाने आपली स्वतःची जवाबदारी ओळखून पथ्य व औषधपाणी यांचा स्वयंस्फूर्तीने व सतत पाठपुरावा केला पाहिजे. मधुमेहाविषयी शास्त्रीय माहिती संपादन करणे हा महत्वाचा टप्पा आहे. आरोग्यावरील “आपण व आपले आरोग्य” ह्या सारखी पुस्तके चर्चामंडळे व आपले डॉक्टर यांचेकडून योग्य ती माहिती मिळू शकेल याच उद्देशाने जागतिक आरोग्य दिनानिमित्त पुणे शहरात वैद्यकीय महाविद्यालय पुणे महानगरपालिका महाराष्ट्र सरकारचे आरोग्य खाते व इतर संस्था सहकार्याने मधुमेहावर एक प्रदर्शन आयोजित केले आहे.



दुसरी सर्वात महत्वाची गोष्ट म्हणजे आहाराविषयक कडक पथ्य, वयोमान, शरीराची ठेवण, कामधंदा व इष्ट वजन इत्यादी गोष्टी विचारात घेऊन आहाराचे प्रमाण ठरवावे लागते. साधारणतः शरीराच्या दर किलो वजनाला २५ ते ३० उप्मांक किंवा कॅलरी भरपूर होतात. तसेच खाद्य पेयांची निवड करतांना त्यातील विविध घटकांचे प्रमाण विचारात घ्यावे लागते. हे प्रमाण दर्शविणारे तक्ते उपलब्ध आहेत. साधारण १८०० उप्मांक देणाऱ्या समतोल आहाराने मधुमेही व्यक्ती उदरनिर्वाह होऊ शकेल. डॉक्टर सल्ल्यानुसार व वजनमापच्या साह्याने आपला रोजचा आहार ठरवावा व त्यात बदल करू नये.

“भुकेहून दोन घास कमीच खाणे” “इष्ट वजनापेक्षा ५ ते १० टक्के वजन कमीच ठेवणे” हे दोन महामंत्र मधुमेही माणसाच्या फार उपयोगी आहेत. आग्रहाला बळी न पडता “नको” म्हणता आले व जिभेवर तावा ठेवता आला तर अर्धी लढाई जिंकता येते. जन्माची सोवत करणाऱ्या या विकारात आहाराला जास्त महत्व असून औषधी उपायांना दुय्यम महत्व आहे. केवळ औषधे घेऊन मधुमेह वरा होईल व त्याच्या दुष्परीणामापासून वचाव होईल ही समजूत भ्रामक आहे. खोटी आहे. आहाराचे खालोखाल व्यायामाचे महत्व आहे. कोणता व किती व्यायाम घ्यावा कोणते खेळ खेळावे या बाबत डॉक्टरांचा सल्ला घ्यावा. व्यायाम आहार व इन्स्युलिन या तिन्हीमध्ये समतोल राखणे

महत्वाचे आहे. व्यायामामुळे ग्लूकोजचे ज्वलन होण्यास व वजन कायम राखण्यास मदत होते.

मधुमेहात शरीरात उत्पन्न होणारा इन्स्युलिनचा स्त्राव कमी झालेला असतो. १९२१ साली डॉ. फ्रेडरीक बॅन्टीन व चार्लस वेस्ट यांनी इन्स्युलिनचा शोध लावला व तेव्हापासून ते औषध मधुमेहात महत्वाचा उपाय म्हणून प्रचलित झाले. इन्स्युलिन प्राण्यांचे स्वादुपिंडापासून तयार करतात व हे द्रव्य पूरक म्हणून इंजेक्शनद्वारा रोग्यांना देतात. प्रत्येक मधुमेही व्यक्तीने इन्स्युलिनचे प्रकार त्याचे कार्य इंजेक्शन कसे केव्हा व किती वेळा घ्यावयाचे त्याचे दुष्परीणाम व ते टाळण्याचे उपाय इत्यादी वारीक सारीक गोष्टीची माहिती मिळवणे जरूर आहे. तसेच इंजेक्शन स्वतःच घेण्याची पध्दत पण आत्मसात केली पाहिजे. इन्स्युलिनचे प्रमाण डॉक्टरांचे कडून ठरवून घ्यावे जरा जास्त खाल्ले म्हणजे इन्स्युलिनचे प्रमाण थोडेसे वाढविले म्हणजे भागेल ही समजूत चुकीची आहे हे पक्के लक्षांत वाळगले पाहिजे. हल्ली मधुमेहावर गोळ्या निघालेल्या आहेत पण इन्स्युलिनच ऐवजी गोळ्याच चालतील असे नाही. काही निवडक व्यक्तींनाच ही नवी औषधे उपयुक्त असतात व ती फक्त डॉक्टरांच्या सल्ल्यानेच घ्यावीत. मधुमेहावर नियंत्रण ठेवण्यासाठी अधिक सोप्या व प्रभावी औषधासंबंधी सखोल संशोधन करण्याची आवश्यकता आहे. इतर महत्वाच्या बाबी म्हणजे पायांची व त्वचेची निगा नियमितपणे मुत्राचे व रक्ताचे परीक्षण जखमा व इतर आजारांकडे दुर्लक्ष्य न करणे



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## मधुमेह : रोगनियंत्रण आणि पथ्याहार

### पुरस्कार

मधुमेह हा केवळ एक आजार नसून “चयापचया” ची एक स्थिती आहे हे प्रथम समजावून घेणे आवश्यक आहे. जेव्हा आजार काही निश्चित कारणांनी होतात तेव्हा ती कारणे दूर करणे हा त्या आजागवरील प्रमुख उपाय ठरतो. उदाहरणार्थ “न्यूमोकोकस” नावाच्या जंतूच्या प्रादुर्भावाने फुफ्फुसात न्यूमोनिया” होतो तेव्हा पेनिसिलीनसारख्या अँटिबायोटिक औषधांनी न्यूमोकोकस” मारणे हा उपाय होतो.

तसे मधुमेहाबाधित नाही. शरीरातील चयापचयाच्या शेकडो प्रक्रिया अहोरात्र चालू असतात. त्यातील काही विघाडामुळे शरीरात निर्माण झालेले परिणाम आजार म्हणून दिसतात. आपल्या शरीरातील अन्नघटकांचे पेशीतील पचन होण्यास “द्विपिन” (इन्शुलिन) या आंतर्द्रावाची गरज असते. केवळ कार्बो-दकांचेच नव्हे तर प्रथिने व स्निग्ध घटकांचेही चयापचय या द्विपिनावरच अवलंबून असतो हे लक्षात ठेवावे.

द्विपिनाच्या कार्यात कशानेही कमतरता आली तरी चयापचयाची स्थिती विघडते. पेशींना साखर वापरता येत नाही. प्रथिनांची बांधणी मंदावते. स्निग्धता शरीरातील वाढलेली साखर लघवीतून रक्तामार्फत यकृताकडे वेगाने जाऊ लागते. लघवी अधिक होऊन पाणी व सोडियम पोटॅशियम आदि क्षार शरीरातून अतिरेकी प्रमाणात बाहेर टाकले जाऊ लागतात. हे सर्व घडत असताना केशवाहिन्यांच्या

अस्तंगवर “ग्लायकोप्रोटीन” नावाच्या पदार्थाची ठेकळे जमू लागतात. त्यामुळे केशवाहिन्या ठिसूळ, अरुंद व अकार्यक्षम होतात. ठिकठिकाणच्या पेशींना रक्ताचा पुरवठा योग्य प्रमाणात होऊ शकत नाही व रक्तस्त्राव होऊ लागतात. असे परिणाम डोळ्यांतील अंतःपटलावर, हृदयातील व मेंदूच्या रक्तवाहिन्यांवर, हातापायाच्या शिरांवर व मूत्रपिंडावर विशेष होतात. एकदा असे परिणाम झाले म्हणजे संपूर्णपणे दुरुस्त होणे अशक्यच. हे परिणाम होऊ नयेत किंवा झाल्यास त्यांची प्रगती मंदावण्याकरिता आटोकाटीचे प्रयत्न करणे आवश्यक आहे.

हे प्रयत्न करतांना रुग्णास आजाराची जितकी माहिती मिळेल तितकी चांगली. आपण राहवे कसे, खावे काय, व्यायाम कोणता व किती करावा, औषधे कोणती घ्यावीत याचे ज्ञान शक्यतो असावे. मधुमेहाचा तावा मिळवण्यासाठी योग्य औषधोपचाराचे जेवढे महत्त्व आहे तेवढेच किंवा थोडे जास्तच महत्त्व वजन ताब्यात ठेवणे मिताहार व योग्य व्यायामाला आहे.

औषधांच्या बाबतीत रुग्णांनी डॉक्टरांच्या सल्ल्याखेरीज काही घेऊ नये. परंतु आहार पुष्कळदा स्वतःलाच ठरवावा लागतो. त्याची तत्वे समजावून घेणे आवश्यक असते ही तत्वे ज्या वैद्यकीय पुस्तकात दिली आहेत त्यातून भारतीय आहाराला साजेशी माहिती संग्रहित करण्याचा स्तुत्य उपक्रम डॉ. देवधरांनी केला आहे. माझी खात्री आहे की या उपक्रमाची उपयुक्तता समाजाला पटेल.



## प्रास्ताविक

“मधुमेह रोगनियंत्रण आणि पथ्याहार’ यासंबंधीच्या प्रस्तुत पुस्तिकेत मधुमेही व्यक्तींनी करावयाचे ‘आहारनियंत्रण’, ‘सुयोग्य खाद्यपदार्थांची निवड’, ‘औषधोपचार’, ‘व्यायाम’, ‘शारीरिक निगा’ आदींची शास्त्रीय माहिती संक्षिप्तपणे दिली आहे. ‘मधुमेही व्यक्तीसाठी आदर्श आहाराची परिपत्रके’ ही पुस्तिकेच्या अखेरीस दिली आहेत. मधुमेही व्यक्तींना ही सारीच माहिती उपयुक्त ठरेल अशी खात्री वाटते.

डायबेटिक असोसिएशन ऑफ इंडियाचे (पुणे शाखा) अध्यक्ष आणि महाराष्ट्रातील सुविख्यात

वैद्यकशास्त्रज्ञ डॉ.ह.वि.सरदेसाई यांनी प्रस्तुत पुस्तिकेसाठी पुरस्कार लिहिला, तसेच असोसिएशनचे कार्यवाह श्री.वि.म. देवल यांनी पुस्तिकेचे हस्तलिखित वाचन करून अनेक उपयुक्त सूचना दिल्या त्यावद्दल तसेच असोसिएशन पुरस्कृत म्हणून सदर पुस्तिकेस मान्यता दिली म्हणून मी या उभय सुहृदांचा आभारी आहे. पुणे येथील ‘प्रबोधन मास कम्युनिकेशन फौंडेशन’चे प्रथम प्रकाशन म्हणून प्रस्तुत पुस्तिका प्रकाशित होत आहे. वैद्यकीय विषयावरील अशाच तऱ्हेच्या अन्य पुस्तिका प्रकाशित करण्याची फौंडेशनची योजना आहे.

## अनुक्रमणिका

१. उपोदघात
२. आहारनियंत्रण
३. सुयोग्य खाद्यपदार्थांची निवड
४. मधुमेही व्यक्तीने करावयाचे औषधोपचार

५. मधुमेही व्यक्तीने करावयाचे व्यायाम
६. मधुमेही व्यक्तीने राखावयाची शारीरिक निगा
७. मधुमेही व्यक्तीसाठी सामान्य सूचना
८. मधुमेही व्यक्तीसाठी आदर्श आहाराची परिपत्रके

## १ उपोदघात

**मधुमेहाचे मुळ** इन्शुलिन नामक द्रावाच्या संपूर्ण अभावामुळे अथवा दुर्भिक्ष्यामुळे मानवी शरीर प्रक्रियेत निर्माण होणाऱ्या विघाडामधून मधुमेहाची निर्मिती होते. शरीरप्रक्रियेतील हा विघाड दूर करून ही प्रक्रिया मुळ पदावर आणणाऱ्या हरएक उपाय योजनेमुळे मधुमेह नियंत्रण होऊ शकते.

**मधुमेह प्रतिबंधक चतुर्विध उपाय योजना** या उपाययोजना संक्षिप्तपणे पुढीलप्रमाणे होत.

(१) **आहार नियंत्रण:** इन्शुलिन स्त्रवणाच्या स्वादुपिंड (पॅक्रियेस) ग्रंथी मधुमेहात सदोप किंवा निकामी होतात. अतिआहारामुळे मुळातच सदोप असणाऱ्या या ग्रंथीवर अधिक भार पडण्याचा धोका असतो म्हणून आहाराचे प्रमाण कमी करणे.

(२) **औषधोपचार:** (अ) रक्तातील साखरेचे वाढते प्रमाण कमी करणे : रक्तातील शर्करा प्रमाण नैसर्गिक सीमेवर आणण्यासाठी तसेच मूत्र शर्कराविमुक्त करण्यासाठी शरीरात इन्शुलिन द्राव टोचणे. (व) पोटात घेण्याची औषधे : स्वादुपिंड ग्रंथीला अधिक प्रमाणात इन्शुलिन द्राव स्त्रविण्यास उत्तेजित करण्यासाठी पोटात औषधे घेणे.

(३) **व्यायाम:** मानवी शरीरप्रक्रिया उत्तेजित करण्यासाठी व्यायाम करणे

(४) **शारीरिक निगा:** मधुमेहातून उद्भवणारे दुष्परिणाम टाळण्यासाठी शरीराची काळजी घेणे नियमितपणा व नेमस्तपणा अंगी जोपासणे.



## २ आहार नियंत्रण - आहार नियंत्रणाची मूलतत्त्वे

**कमी आहाराचे पथ्य:** मधुमेहावर (पुरेसा) तावा मिळविण्यासाठी या रोगावरील उपरोक्त उपाय योजना जन्मभर करावी लागते. मधुमेहाच्या प्रारंभिक अवस्थेत कमी आहाराचा उपक्रम विशेष कसोशिने अमलात आणणे आवश्यक असते. तसे करण्याने मधुमेही व्यक्ती काही विशेष औषधोपचार न करता दीर्घकाळपर्यंत व्याधी कावू शकते.

**आहारनियमन:** मधुमेह नियंत्रणाचा सर्वाधिक महत्वपूर्ण आणि मूलभूत उपाय म्हणजे आहारनियमन हा होय. जिहालौल्य, उदरभरण अथवा यांना न जुमानता शरीराच्या आवश्यकतेनुसार आणि क्षमतेनुसार आहार घेणे असे या आहारनियमनाचे आद्य तत्व सांगता येईल. मधुमेही व्यक्तीच्या वय व उंचीनुसार त्यांचे आदर्श वजन किती असले पाहिजे हे प्रथम ठरवायचे आणि त्या व्यक्तीच्या दर किलोग्रॅम आदर्श वजनामागे २५ ते ३० उष्णांक ह्यकॅलरी प्रदान करील एवढेच मर्यादित अन्न सेवन करावयाचे असे आहारनियमनाचे तंत्र आहे. उदा. एखाद्या मधुमेही व्यक्तीचे वाजवी वजन ६० किलो अपेक्षित असेल तर त्याने प्रतिदिनी १५०० ते १८०० उष्णांक (कॅलरी) प्रदान करील एवढेच अन्न आणि खाद्यपदार्थ ग्रहण करावेत.

**आहाराचे प्रमाण:** मधुमेही व्यक्ती प्रमाणावाहेर लडू असेल तर वजन कमी करण्यासाठी आहाराचे प्रमाण वर उल्लेखले त्यापेक्षा कमी म्हणजे दर किलो वजनामागे २५ उष्णांक (कॅलरी) प्रदान करील इतकेच किंवा कमी असावे. याचे उलट कृश अंगकाठीच्या आणि प्रमापेक्षा कमी वजन असणाऱ्या मधुमेही व्यक्तींना व मुलांना ठीक प्रमाणापेक्षा थोडे अधिक द्यावे लागेल. मधुमेही व्यक्तीच्या शरीरातीलपेशी इन्शुलिनच्या कमतरतेमुळे शर्करेच्या योग्य उपयोग करू शकत नाहीत. त्यामुळे रक्तात भरपूर शर्करा उपलब्ध असूनही मधुमेही व्यक्तीच्या पेशी मात्र शर्करे शिवाय उपाशी राहतात. तसेच पेशीच्या शर्करा वापरण्याच्या असमर्थतेमुळे प्रथिने इत्यादी अन्नघटकांचा उपयोग करण्यात पण शरीरात अडथळा निर्माण होतो.

स्वादुपिंडावर भार न पडेल असा मिताहार: स्वादुपिंडावर भार न पडेल अशा मिताहाराची निवड मधुमेही व्यक्तींना करावी आणि स्वादुपिंडावर ताण पडेल अशा अतिरिक्त आणि मनसोक्त आहाराचा त्याग कमप्राप्त म्हणून करावा.

**आहाराची निवड:** वरील उद्दिष्टे साध्य करण्यासाठी आपल्या आहाराची कशी निवड करावी हे मधुमेही व्यक्तीला स्वतःचे स्वतः समजणे अगत्याचे आहे. या निवडीसाठी आपल्या अन्नातील विभिन्न घटकांचे परिमाण आणि उष्णांक गुण समजून घेणे आवश्यक आहे. उदा. तांदूळ, गहू, ज्वारी, नाचणी यासारख्या एकदल धान्यात शर्करा शेकडा ७० ते ८० टक्के असते. याचे उलट द्विदल धान्यात हे प्रमाण ५६ ते ६० टक्के; वटाटे, रताळी, आदि भूमिगत कंद भाज्यांत १५ ते २५ टक्के; फळभाज्यात ६ ते १५; टक्के दुधात ५ टक्के; पालेभाज्यात ३ ते ५ टक्के असते. ताज्या फळांमध्ये शर्करा परिमाण शेकडा ५ टक्के (कॅलिंगड) ते ३५ टक्के (केळे) इतके विविध असते.

**आहारनियंत्रणाबाबतचे मुद्दे:** उतारवयातील मधुमेह हा वहंशी आहारनियंत्रणाने आटोक्यात येतो असा अनुभव आहे. मधुमेही व्यक्तीच्या आहारनियंत्रणात खालील मुद्दे ध्यानी ठेवावेत.

(१) **उष्णांक परिमाण** - मधुमेही व्यक्तीच्या शरीरास निरोगी व्यक्तीइतकेच उष्णांक परिमाण आवश्यक असते. (२) **आहारविषयक आवडी निवडी** - मधुमेही व्यक्तीने आहार निश्चित करताना उष्णांक (कॅलरीज), आहारद्रव्ये, तसेच आहारविषयक आवडी निवडी आणि आर्थिक परिस्थिती लक्षात घेऊन आहाराची आखणी करावी. (३) **वजन नियंत्रण** - मधुमेही व्यक्तीचे वजन कमी केल्याने त्यास लागणाऱ्या अन्नाची जरूरी कमी होते व त्यामुळे इन्शुलिनची जरूरीही आपोआपच कमी होते. म्हणूनच आहार नियंत्रणातून वजननियंत्रण हा मधुमेह नियंत्रणाचा सर्वाधिक प्रभावी इलाज ठरतो. याला मनोनिग्रह मात्र पाहिजे. (४) **वजन आणि उंचीच्या**



**कोष्टकाचा आधार -** मधुमेही व्यक्तीचा आहार हा त्याचे वजन कमी करून ते एका विशिष्ट पातळीवर आणण्याच्या दृष्टीने आणि तदनंतर ते तेथेच स्थिर ठेवण्याच्या दृष्टीने आवश्यक आहे. याकरीता वयाच्या २५ वर्षी असणारे वजन हे त्या व्यक्तीचे साधारणतः मूलभूत वजन मानून नंतरच्या आयुष्यात वजनात पडलेली भर अनैसर्गिक मानावयास हरकत नाही. अर्थात या महत्वाचे वावतीत वजन व उंचीच्या कोष्टकाचा आधार पण जरूर घ्यावा ) परिपत्रक अ पहा .

( ५ ) दर किलो वजनमागे २५ कॅलरीज - अशा तऱ्हेने मधुमेही व्यक्तीचे आदर्श वजन सुनिश्चित केल्यानंतर त्याच्या दर किलो वजनमागे प्रतिदिनी २५ ते ३० कॅलरीजचा पुरवठा होईल इतक्या अन्नाचे सेवन त्याने करावे . उदाहरणार्थ : १६५ से.मी. (५फूट) उंचीच्या (व ६१ किलो प्रत्यक्ष वजनाच्या) आणि मध्यम वांध्याच्या व्यक्तीचे वजन ५८ किलो अपेक्षित ठरवलेले आहे अशा व्यक्तीला दररोज फक्त १४५० ते १७५० उष्णांकाची आवश्यकता आहे .

( ६ ) पिष्टमय पदार्थांचे परिमित सेवन - शाकाहारी अन्नात पिष्टमय पदार्थांचे विशेष प्राधान्य असते . अशा पदार्थांचे अतिरिक्त सेवन मधुमेहास कुपथ्य असल्याने या पिष्टमय पदार्थ खाण्याचे प्रमाण प्रत्यक्ष खाण्यात येत असल्यापेक्षा ५० ते ५५ टक्क्यांवर आणावे . उदाहरणार्थ वर सांगितलेली व्यक्ती आपल्या जेवणात गहू तांदूळ व इतर कर्वयुक्त पदार्थ जर ३०० ते ३५० ग्रॅम एवढे खात असेल तर पिष्टमय पदार्थांचे दररोजचे सेवन साधारणतः १५० ते १८० ग्रॅम इतके मर्यादीत करावे हे ओघानेच येते . मधुमेही व्यक्तीच्या आहारातील कर्व युक्त पदार्थांचे प्रमाण कमी करीत असताना नत्रयुक्त पदार्थांचे सेवन योग्य प्रमाणात वाढवावे . हे प्रमाण जर कमी असेल तर दर किलो शारीरिक वजनास १ ग्रॅम इतके वाढवावे . उदाहरणार्थ वर निर्देशिलेल्या ५८ किलो अपेक्षित वजनाची मधुमेही व्यक्ती डाळी; कडधान्ये; अंडे; मासे; वगैरे नत्रयुक्त आहार फार कमी प्रमाणात घेत असेल तर ते प्रमाण वाढवावे व साधारणतः ५५ ते ६० ग्रॅम प्रथिने रोज खावीत . एवढ्या प्रथिनातून सरासरीने २३० उष्णांकाचा पुरवठा होतो . अन्नाला चव येण्यासाठी व समाधान वाटण्यासाठी ५५ ते ६० ग्रॅम तेल दररोज खाण्यात येणे

जरूर आहे . वरील प्रकारच्या आहारातून साधारणतः १३०० ते १५०० उष्णांक मिळतील . वजन ६१ किलो वरून ५८ किलोवर आणण्यासाठी सुरुवातीला कमी आहार घ्यावा व वजन ५८ चे जवळपास आले की थोडा आहार वाढवून १४५० ते १५०० उष्णांककावर स्थिर ठेवावा . स्थिर वजन हेच नियंत्रित आहाराचे इष्ट गमक समजावे .

(७) कर्वयुक्त, नत्रयुक्त आणि चरबीयुक्त आहाराचे प्रमाण - अशा तऱ्हेने उपरोक्त मधुमेही व्यक्तीसाठी सुनिश्चित झालेला १८०० ग्रॅम कर्वयुक्त, ५८ ग्रॅम नत्रयुक्त, आणि ५७ ग्रॅम चरबीयुक्त आहार त्याने आपल्या रोजच्या आहारात आवश्यक ते फेरवदल करून अंगवळणी पाडावा, आणि दिवसातून किमान चार वेळा थोड्या प्रमाणात अन्नसेवन करता येईल अशा पध्दतीने त्याची विभागणी करावी . सर्वसामान्यतः सेवन करावयाच्या उष्णतापरिमणापैकी १.६ परिमाण सकाळच्या नाश्यासाठी आणि प्रत्येकी २.६ परिमाण दुपारच्या आणि रात्रीच्या भोजनासाठी व १.६ मधल्या वेळेसाठी राखून ठेवावे . विशिष्ट उष्णांकाच्या मर्यादित मधुमेही व्यक्तीने स्वतःच्या आवडीनिवडीनुरूप अन्नपदार्थांची निवड व फेरफार करावा .

**प्रतिदिनी १८०० कॅलरीजचा आहार:** मधुमेही व्यक्तीने आपला आहार प्रतिदिनी सर्व साधारणपणे १८०० कॅलरीज उष्णता परिमाणा इतका योजित करावा . या आहाराची विभागणी १८० २०० ग्रॅम पिष्टमय पदार्थ, ६० ग्रॅम नत्रद्रव्ये, आणि ७० ते ९० ग्रॅम स्निग्ध द्रव्ये अशी असावी .

स्निग्ध पदार्थांमुळे अन्नसेवनाचे आंतरिक समाधान प्राप्त होत असले तरी अतिरिक्त तेलकट व तळलेल्या पदार्थांच्या सेवनाने अथेरोस्केरोसिस होतो आणि वजन वाढते . तसेच मधुमेह वळावतो . हे मधुमेही व्यक्तीने ध्यानी ठेवावे . म्हणूनच मधुमेही व्यक्तीने तेल माफक प्रमाणात सेवन करावे आणि तूप किंवा वनस्पती न घेता, करडई शेंगदाणा अथवा तीळ यासारख्या तेलांचा वापर करावा . काही लोकांना अतिरिक्त स्निग्धपदार्थ सेवन केल्याखेरीज जेवल्यासारखे वाटत नाही . त्यांनी इतर अन्नपदार्थ कमी करून थोडे अधिक स्निग्धपदार्थ (७५ ग्रॅम) खाण्यास हरकत नाही .



वजन कमी न झाल्यास कडक आहार नियंत्रण: मधुमेही व्यक्तीच्या आहारनियंत्रणाचे प्रमुख उद्दिष्ट अतिरिक्त वजन कमी करणे आणि वजनाचे प्रमाण एकदा आटोक्यात आले की ते तसेच कायम ठेवणे हे सांगता

येईल. आहारनियंत्रणाच्या ६ ते ८ आठवड्यांच्या प्रयोगानंतर वजन पुन्हा प्रमाणात कमी झाले नाही अथवा ते कमी न होता वाढले तर अधिक कडक आहारनियंत्रण करणे कमपात्र ठरेल.

### आदर्श उंची वजनाचे परिपत्रक अ (२५ वर्षावरील व्यक्तीसाठी)

उंची (से.मी.)	वजन किलोग्रॅममध्ये					
	पुरुष			स्त्री		
	छोटा बांधा	मध्यम बांधा	मोठा बांधा	छोटा बांधा	मध्यम बांधा	मोठा बांधा
१४७	-	-	-	४५.३	४८.२	५१.९
१५०	-	-	-	४६.१	४९.०	५२.७
१५२	४८.४	५३.०	५६.२	७४.०	४९.८	५३.५
१५५	५१.००	५४.३	५८.०	४८.२	५१.०	५५.१
१५७	५२.०	५५.६	५८.८	४९.४	५२.०	५६.३
१६०	५३.९	५७.०	६०.९	५१.०	५३.२	५८.०
१६२	५५.६	५८.८	६२.५	५२.३	५५.१	५९.१
१६५	५६.८	६०.०	६४.१	५३.९	५७.२	६१.२
१६८	५७.४	६१.६	६६.१	५५.५	५८.८	६२.९
१७०	६०.०	६३.७	६७.८			
१७३	६१.६	६५.३	६९.४			
१७५	६३.३	६७.०	७१.४			
१७८	६५.०	६८.६	७३.५			
१८०	६७.०	७०.६	७५.५			
१८३	६८.६	७२.२	७१.२			

चार वेळा समतोल आहार: थोडक्यात अतिरिक्त वजनाच्या मधुमेही व्यक्तीचा पथ्याहार, हा माफक उष्णांकयुक्त, संतुलित अन्नघटकयुक्त, आणि विशेषतः इन्धुलिन आदि औषधे घेणाऱ्या मंडळीच्या वावतीत दिवसातून किमान चार वेळात समप्रमाणात विभागलेला अमला पाहिजे. मधुमेही रुग्णाच्या वैयक्तिक आहाविषयक आवडी-निवडी, रुची, घरगुती खाद्यपरंपरा आणि आर्थिक क्षमता, यांनुसार आहारामध्ये आवश्यक ते फेरफार अवश्य करावेत. पथ्याहार पालनाचा

दृढनिश्चय आणि काटेकोर नियमितपणा राखल्यास ६ ते ८ आठवड्यांच्या आतच मधुमेह आटोक्यात आल्याचा सुखद अनुभव येईल.

आहाराबाबत ठोकताळा: अनेकदा मधुमेही व्यक्तींना गैम अथवा किलोग्रॅम यांची परिभाषा सहजामहजो अंगवळणी पडत नाही. त्यांनी आपल्या नेहमीच्या आहाराच्या फक्त पाऊणपट (७५ टक्के) आहार घ्यावा. भात आणि चपाती (अथवा भाकरी) नेहमीपेक्षा निम्म्याने खावी



आणि वार्की आहार जसा होता तसाच घ्यावा, असे दावळमानाने सांगता येईल. याचा १५ दिवसांनी वजनावर काय परिणाम होतो हे लक्षात घेऊन आहार तेवढ्याच किंवा कमी जास्त करवा का हे ठरवावे.

**वालरूणांना पथ्याहार अनावश्यक:** मधुमेही वालरूणांचा रोग इन्शुलिनने संपूर्ण आटोक्यात येतो असा अनुभव आहे. त्यामुळे त्यांचे वावरीत पथ्याहार वर्गीलप्रमाणे पाळण्याची गरज नाही. या वालकांच्या शरीरावाढीसाठी आवश्यक ते साधारणपणे २१०० उष्णांक समताल आहारद्वारे पुरविणे आवश्यक असते.

### आहाराची पथ्ये

**मधुमेही व्यक्तीने पाळावयाची आहाराची पथ्ये:** अन्नपदार्थांचे शर्करापरिमाण लक्षात घेऊन मधुमेही व्यक्तीने आपला आहार निश्चित करावा. मात्र तसे करताना खालील पथ्ये ध्यानी घ्यावीत -

(१) चॉकलेट बर्फी आदि गोड पदार्थ वर्ज्य - सर्व गोड पदार्थ व पक्याचे यातील साखर रूधिरप्रवाहात जलद समीलित होत असल्याने, तसेच हे पदार्थ उदाहरणार्थ चॉकलेट, बर्फी वगैरे थोड्या प्रमाणात खाल्ले तर क्षुधानृप्ती होत नाही. भूक भागत नाही. आवडीबद्दल किंवा समाधान न झाल्याने, या पदार्थांचे प्रमाणात सेवन केले जात नाही. त्यामुळे मधुमेही व्यक्तीने त्यांचे सेवन शक्यतो टाळावे. गोड पदार्थ खावेमेच वाटले, तर साखरगंजणी कृत्रिमरित्या गोडी निर्माण करणारे संकरीनमाखे पदार्थ वापरावेत. मात्र त्याचाही संयमित प्रयोग करावा.

(२) पिष्टमय पदार्थ वर्ज्य - पिष्टमय द्रव्यांनी समृद्ध असे बटाटे, गताळी, मावुदाणा, हे पदार्थ टाळावेत.

(३) तृणधान्य मितप्रमाणात - भरपूर पिष्टमय द्रव्ये असलेली तांदूळ, गहू, ज्वारी, वगैरे तृणधान्य, तसेच त्यांपासून बनलेले अन्नपदार्थ, उदाहरणार्थ ब्रेड, भाकरी, चपाती, आदि खाद्यपदार्थांपूर्वनियोजित, ठरीव, आणि कमी प्रमाणात खावेत. डाळी आणि कडधान्य आदि द्विदल धान्ये पुरेशी खावीत. शेंगदाणे, काजू, अकांड इत्यादी तेलयुक्त मुकामेचा शक्यतो टाळावा.

(४) फळे आणि कंदमुळे विचारपूर्वक - फळे आणि कंदमुळे यांचा आहारातील वापर त्यांचे शर्करा परिमाण पूर्ण विचारात घेऊनच करावा. १० ते १५ टक्के पिष्टमय पदार्थ परिमाण असणारी फळे प्रतिदिनी किमान १०० ग्रॅम खावीत.

(५) भाज्या चहा कॉफी विपुल प्रमाणात - शेकडा ३ ते ५ टक्के, तसेच ६ ते १५ टक्के पिष्टमय पदार्थ परिमाण असणाऱ्या भाज्या, तसेच शर्कराविरहित चहा, कॉफी, सूप, आदि पेये विपुल प्रमाणात सेवन करावीत.

(६) मांस अंडी नित्याप्रमाणे - मांस, मासे, अंडी, आदि शर्कराविरहित संमिश्र पदार्थ नित्याप्रमाणेच खावेत. शाकाहारी व्यक्तींनी नियमितपणे दररोज किमान १ ते २ लिटर (दोन ग्लास) दूध, माय काढलेले, घ्यावे.

**आहारनियंत्रण मुख्य उपाय:** मधुमेही व्यक्तीने आपला आहार वर उल्लेखिल्याप्रमाणे स्वयंनियंत्रित केला नाही तर रक्तातील व लघवीतील शर्करापरिमाण कमी करणारी इन्शुलिन, तसेच मुखावाटे घेतलेली औषधे, कमी प्रभावी ठरतात. वट्टमूल (लड्डू) मधुमेही व्यक्तीच्या वावरीत आहारनियंत्रण हाच प्रमुख उपाय असून औषधांपेक्षा दुय्यम स्वरूपाचा असतो. मधुमेही व्यक्ती स्थूल असेल, तर त्याचे वावरीत आहारनियंत्रण हा एकमेव उपाय मुद्धा रोगावर नियंत्रण ठेवू शकतो. मधुमेह उपचाराच्या प्राग्भी मधुमेही व्यक्तीने स्वतःच्या दैनंदिन आहारातील कच्च्या पदार्थांचे वजन करावे, इतर खाद्यपदार्थांचा अभ्यास करावा, व त्याआधारे आपले अन्नाचे प्रमाण ठरवावे.

### आहारनियंत्रणाबाबत अल्पाक्षरी सल्ला:

आहारनियंत्रणाच्या वावरीत मधुमेही व्यक्तीला थोडक्यात पुढीप्रमाणे सल्ला सांगता येईल - “इतःपर आकंट भोजन बंद करा. थोडी भूक कायमच ठेवूनच ताटावरून उठा. भोजनाच्या वेळी कोणाच्याही आग्रहाला बळी न पडता स्वयंनियंत्रित, किंवा डॉक्टरने ठरवून दिलेले तोवढेच जेवा, आणि अशा तऱ्हेने आहार-नियंत्रणाच्या साहाय्याने मधुमेहावर ताबा प्राप्त करा.”



## मधुमेह आणि स्थूलता प्रतिबंधक आदर्श आहार

मधुमेही व्यक्तीच्या १ दिवसातील (२४ तास) आदर्श आहाराची संक्षिप्त माहिती निम्नलिखित परिपत्रकात दिली आहे. त्यानुसार आपल्या आवडीनुसार सुयोग्य खाद्यपदार्थांची निवड मधुमेही व्यक्तीने करावी.

अन्नपदार्थ	प्रतिदिनी सेवन
(१) पिष्टमय पदार्थ (भात गहू अथवा अन्य एकदल धान्ये)	५० ग्रॅम (१ वाटी भात अथवा ४ पातळ पोळया अथवा ३ काप वेड)
(२) नत्रयुक्त पदार्थ (डाळ, मासे अथवा मांस)	४० ग्रॅम
(३) स्निग्ध पदार्थ (खाद्य तेले)	१० ग्रॅम
(४) हिरव्या भाज्या	५०० ग्रॅम
(५) दूध अथवा दही	५० ग्रॅम
(६) फळे	२ फळे

## ३ सुयोग्य खाद्यपदार्थांची निवड

मधुमेही व्यक्तीने खाद्यपदार्थांची निवड करताना खाली सुयोग्य म्हणून दिलेल्या खाद्यवस्तूंचा अधिकात अधिक वापर करावा. याचे उलट अयोग्य म्हणून दिलेल्या खाद्यवस्तू कटाक्षाने टाळाव्यात.

**शर्कराविनिमयाचे असंतुलन:** मधुमेह रोगात मानवी शरीरातील शर्कराविनिमयाची प्रक्रिया असंतुलित होते. या असंतुलनामुळे अन्नमधून घेतलेली शर्करा शरीराचे कामी खर्ची न पडता, ती रक्तामध्ये किंवा अन्य अवयवांत साठून राहते. या साठवणुकीला आळा घालण्यासाठी आहारातील शर्करेचे प्रमाण कमी करणे स्वाभाविक उपाय आहे.

**माफक शर्करा सेवन:** ज्या अन्नपदार्थांमध्ये शर्करेचे अधिक्य आहे, ते पदार्थ मुदामच कमी घेण्यास सुचविले

आहे. ज्या अन्नपदार्थांमध्ये शर्करा माफक प्रमाणात आहे, ते पदार्थ थोड्या सडळ हाताने घेण्यास सांगितले आहे. याचे उलट ज्या अन्नपदार्थांमध्ये शर्करा अंशमात्रही नाही, ते पदार्थ मन मानेल तेवढ्या सडळ हाताने घेण्यास येथे सुचविले आहे.

**मधुमेही व्यक्तीसाठी समतोल आहार:** उपरोक्त निकषांच्या आधारे भात, चपाती, पुरी, वटाटा, हे पिष्टमय पदार्थ अत्यल्प प्रमाणात घेण्यास सुचविले आहे. हे पदार्थ कमी खाल्ल्यामुळे पोट रिकामे राहिल्याची भावना मधुमेही व्यक्तीच्या ठायी उत्पन्न होईल. ती टाळण्यासाठी शर्कराप्रमाण सर्वाधिक कमी असणाऱ्या हिरव्या भाज्या विपुल प्रमाणात खाण्यास सुचविले आहे. त्याचेच जोडीला भरपूर ताक पिण्यास सांगितले आहे.



**शर्करायुक्त पदार्थ टाळा:** ज्या पदार्थमधील शर्करा शरीरातील रूधिरप्रवाहात जशीच्या तशी समीलित होत ते पदार्थ मधुमेही व्यक्तीने कटाक्षाने टाळावेत .

**भारतीय आहारातील प्रमुख शर्करायुक्त पदार्थ:** भारतीय अन्नापैकी प्रमुख शर्करायुक्त पदार्थ पुढीलप्रमाणे होत - १.उसाची साखर, २. शर्करामिश्रीत गोळया, पेपरमिंट्स, वगैरे खाऊ, ३.मिठाई, ४. ग्लुकोज अथवा फळाची साखर, ५. मध, ६. सर्व प्रकारचे मोरांवे, ७. गोड चटण्या अथवा लोणची, ८. पिण्याचे चॉकोलेट, १०.पुडिंग्ज, ११.जाम आदि खाद्यपदार्थ, १२.वंद डब्यातील टिकवलेली फळे, १३.आईस्क्रीम, १४.मिल्क शेक अथवा कोल्ड ड्रिंक्स, १५. चॉकोलेट्स .

**साखर वर्ज्य करा:** मधुमेही व्यक्तीच्या आहारातील भाजी, आमटी, कॉफी, चहा, कोको, पुडिंग्ज, आदीमध्ये साखर, गूळ, घालू नये . अगदीच वाटले तर सॅकरिन वापरावे .

**पिष्टमय पदार्थ मर्यादित प्रमाणात:** पिष्टमय पदार्थाचे मानवी शरीरातील पचनानंतर साखरेत रूपांतर होऊन, त्याच स्वरूपात ती रूधिरप्रवाहात प्रविष्ट होते . म्हणून मधुमेही व्यक्तीने प्रतिदिनी फारच मर्यादित प्रमाणात पिष्टमय पदार्थ खावेत .

**भारतीय अन्नतील पिष्टमय पदार्थ:** भारतीय अन्नातील प्रमुख पिष्टमय पदार्थ पुढीलप्रमाणे होत - १. भात, २. चुरमुरे, ३.पोहे, ४.इडली, ५. डोसा, ६.ढोकळा, ७. चिवडा, ८. गहू, वाजरी, अथवा ज्वारी यांचे पीठ, ९.वटाटा, रताळे, सुरण, आदि भाज्या, १०. आरारूट, मक्याचे पीठ, सावुदाणा, ११.मॅकारोनी, शेवया, १२. कॉर्नफ्लेक्स, पॉरिज, ओट, मील, वाल्नी, १३.ब्रेड, १४.विस्किटे, १५. विभिन्न प्रकारची सूप .

**समतोल पिष्टमय आहार:** भात खाण्याची सवय असणाऱ्या मधुमेही व्यक्तीने प्रतिदिनी एक वाटी भात अथवा तेवढ्याच वजनाचा तांदळापासून तयार केलेला कोणताही अन्नपदार्थ खावा . मधुमेही व्यक्तीला गहू आवडत असेल तर दररोज मध्यम आकाराच्या चार पातळ चपात्या खाव्यात . संबंध दिवसात दोनदा अथवा

कितीही वेळा जेवले तरी सर्व पिष्टमय पदार्थाचे संकलित प्रमाण विशिष्ट मर्यादित वसवावे . परंतु कोठल्याही परिस्थितीत पिष्टमय पदार्थाचे प्रतिदिवशीचे प्रमाण मर्यादे पेक्षा अधिक वाढू देऊ नये .

**कमी प्रमाणात फळभाज्या:** वटाटा,, सुरण, वीट, रताळे, हिरवी केळी, या फळभाज्या (कंद) मध्ये पिष्टमय पदार्थाचे प्रमाण अधिक असते . तेव्हा मधुमेही व्यक्तीने त्या कमी प्रमाणात खाव्यात .

**प्रमुख नत्रयुक्त अन्नपदार्थ:** मधुमेही व्यक्तीने निम्नलिखित वनस्पतिजन्य अथवा प्राणिजन्य नत्रपदार्थां मधून स्वतःचे रूचीनुसार निवड करावी . (१) वनस्पतिजन्य नत्र पदार्थ - तूर, उडीद, मसूर, मूग, डाळीचे वरण, अथवा मोड आणलेला हिरवा वाटाणा, मटकी, आदींचे वरण . (२) प्राणिजन्य नत्र पदार्थ - अंडी, मटन, चिकन, अथवा मासे .

**स्निग्ध पदार्थ व खाद्य तेल:** मधुमेही व्यक्तीने वनस्पती तूप आणि मार्गारिन शक्यतो संपूर्ण टाळावे .

**दूध आणि दूग्धपदार्थ:** मधुमेही व्यक्तीने प्रतिदिनी १ पाव साय काढलेले दूध अथवा एवढ्या दुधापासून तयार केलेले दही, ताक, खारी लस्सी, (गोड नव्हे) अथवा चीज खावे .

**हिरव्या भाज्या भरपूर खा:** मधुमेही व्यक्तीने निम्नलिखित हिरव्या भाज्यापैकी स्वतःच्या आवडीच्या भाज्या भरपूर खाव्यात . (१) फळभाज्या - भेंडी, काकडी, पडवळ, घोसाळे, भोपळा, दोडका, कांदे, शेवगा, तोंडली, कोवी, फ्लॉवर, टोमॅटो, गाजर, भोपळी मिरची . (२) पालेभाज्या - पालक, मेथी, मुळा, करडई, कोथिंबीर, चाकवत, माठ .

**ताजी फळे:** शर्कराधिक्याची फळे कमी खा - ज्या फळांमध्ये शर्करेचे प्रमाण अधिक आहे अशी फळे मधुमेही व्यक्तीने संपूर्ण टाळावीत अथवा खावयाचीच झाल्यास प्रतिदिनी एक अथवा अर्ध्यापेक्षा अधिक खाऊ नयेत . शर्करायुक्त फळे पुढीलप्रमाणे : केळ, अंजीर, चिकू, आंवा, पेरू, सीताफळ, पपई जर्दाळू . मधुमेही व्यक्तीने साखरेच्या पाकात घोळलेली, वंद डब्यातील फळे सर्वस्वी वर्ज्य करावीत .



शर्करा कमी असणारी फळे अधिक खा - ज्या फळांमध्ये शर्करेचे प्रमाण कमी आहे अशी फळे मधुमेही व्यक्तीने थोडी अधिक खावयास हरकत नाही. अशी फळे पुढीलप्रमाणे : मोसंबी, संत्रे, सफरचंद, द्राक्षे, पीच, अननस, जाम, स्ट्रॉबेरी, गॅमवेरी, गूजवेरी, टग्वूज, कलिंगड.

**सुका मेवा :** सर्वच सुक्या मेव्यात शर्करा आणि पिष्टमय पदार्थ याचे प्रमाण अधिक असते, त्यामुळे मधुमेही व्यक्तीने ती टाळावीत अथवा प्रतिदिनी फारतर १-२ खावीत. हे सुक्या मेव्याचे पदार्थ पुढीलप्रमाणे होत : वदाम, अक्रोड, काजू, खारीक, मनुका, वेदाणा, सुकेअंजीर, जर्दालू, पिस्ता, खजूर.

**फरसाण:**

हरभऱ्याच्या डाळीचे फरसाण खा - मधुमेही व्यक्तीने प्रतिदिनी हरभऱ्याच्या डाळीपासून केलेले थोडे फरसाण खावयास हरकत नाही. मात्र ते फार तेलकट असता कामा नये. हे फरसाणाचे पदार्थ पुढीलप्रमाणे - गाठी, शेव, भजी, डाळ ढोकळा, दहीवडा.

तांदळापासून केले फरसाण टाळा - तांदळापासून केलेल्या फरसाणात पिष्टमय पदार्थाचे आधिक्य असल्यामुळे मधुमेही व्यक्तीने ते शक्यतो कमी खावेत. तांदळापासून केलेले अशा तऱ्हेचे प्रमुख फरसाणाचे पदार्थ पुढीलप्रमाणे - तांदळापासून केलेला ढोकळा, इडली, चिवडा (पोह्याचा अथवा चुरमुऱ्याचा).

**गोड पदार्थ आणि पेये :** मधुमेही व्यक्तीने शर्करेचे आधिक्य असणारे खाद्यपदार्थ आणि पेये घेऊ नयेत. हे पदार्थ पुढीलप्रमाणे. (अ) खाद्यपदार्थ - केक, चॉकलेट, आईस्क्रीम, पुडिंग, पेपरमिन्टस, गोड लोणची अथवा चटण्या, सर्व प्रकारचे मुरंगे.

(व) पेये - शर्करायुक्त चहा, कॉफी, कोको आदि पेये, वाईन, एल पोर्ट, साइडर लिकर, आदि मधुर मद्यप्रकार. चहा कॉफी अथवा कोको घेणे झाल्यास त्यामध्ये साखरेऐवजी सॅकरीन घालून घ्यावीत.

शर्कराविहित खाद्यपदार्थ व पेये: मधुमेही व्यक्तीने शर्कराविहित खाद्यपदार्थ आणि पेये सीमित प्रमाणात घेण्यास हरकत नाही हे पदार्थ पुढीलप्रमाणे.

(१) खाद्यपदार्थ - जेली, कस्टर्ड, तिखट लोणची, ऑलिव्हा. (२) पेये - शहाळ्याचे पाणी, सोडा वॉटर, वाल्मी वॉटर, लेमोनेड. ब्रॅडी, व्हिस्की, रम आदि शर्कराविहित मद्यप्रकार सीमित प्रमाणात, ३० सी.सी., घेण्यास हरकत नाही.

मसाले आणि मसाल्याचे पदार्थ यथेच्छ खा: मसाल्याचे पदार्थ संपूर्णतः शर्कराविहित असल्याने मधुमेही व्यक्तीने ते रूची नुसार हवे तेवढे खावयास हरकत नाही हे पदार्थ पुढीलप्रमाणे - लवंग, केशर, वेलदोडे, मिर्ची, जायफळ, काळी मिरी, आले, हळद, लसूण, जिरे, वडीशेप.

## ४. मधुमेही व्यक्तीने करावयाचे औषधोपचार

**बाल मधुमेह्यांना इन्शुलिन उपयुक्त -** बालपणीच्या मधुमेहात शरीरात नैसर्गिकपणे उत्पन्न होणाऱ्या इन्शुलिनचे प्रमाण कमी पडत असल्याने बाल मधुमेह्यांना इन्शुलिन टोचून घेणे अपरिहार्य ठरते.

**मध्यमवयीन मधुमेह्यांसाठी उपयुक्त औषधे -** मध्यम वयात झालेला मधुमेह अन्ननियंत्रण आणि व्यायाम याचे साहाय्येने सामान्यतः आटोक्यात येतो. परंतु तसा तो

आटोक्यात न येण्याइतपत तीव्र असेल, आणि रोगाचे अन्य काही दुष्परिणाम प्रादुर्भूत होण्याचा धोका असेल, तर मध्यमवयीन मधुमेही व्यक्तीनेही 'टोल्ब्यूटामाइड प्रापॅमाइड' आदि सल्फोनाईल युरिया गटातील मधुमेह विरोधी औषधे तज्ञ डॉक्टरांचे सल्ल्याने घ्यावीत.

रोग जुनाट अथवा तीव्र असेल तर इन्शुलिनही घ्यावे लागते.



## ५ मधुमेही व्यक्तीने करावयाचे व्यायाम

आहारनियंत्रणा इतकेच महत्त्व व्यायामाला - मधुमेही व्यक्तीच्या वावतीत आहारनियंत्रणा इतकेच महत्त्व व्यायामाला असते. व्यायामामुळे रोगनियंत्रणदृष्ट्या दुहेरी फायदा होतो. एक म्हणजे व्यायाममुळे मधुमेही व्यक्तीचे वजन कमी होऊन ते आटोक्यात राहण्यास सहाय्य होते. दुसरे म्हणजे नियमित व्यायामची आवश्यकता. व्यायामामुळे, रक्तातील अतिरिक्त शर्करा स्नायूंची हालचाल व आंकुचन करण्यासाठी कामी येऊन, रक्तशर्करेचे प्रमाण आटोक्यात राहते.

४० वर्षे वयानंतर येणारी शारीरिक स्थूलता - मध्यम वयात वयोमानानुसार शारीरिक व्यायाम कमी घडतो. याचे उलट आहारमान पूर्वीचेच राहते. इतकेच नव्हे तर

कधी कधी ते प्रमाणा वाहेर वाढते. या वाढत्या आहाराची परिणती ४० वर्षे वयानंतर येणाऱ्या शारीरिक स्थूलतेत होते. नियमित व्यायाममुळे ही आपत्ती टळते.

उपयुक्त व्यायामप्रकार - दिवसाकाठी १- २ मैल दुत गतीने फिरणे, पळणे, अथवा घरात दोरीवर उड्या मारणे, हे व्यायाम मधुमेही व्यक्तीने शक्यतेनुसार घ्यावेत. घरात अंग मोडून काम करणे अथवा ऑफिसमध्ये मन लावून काम करणे, हा एक प्रकारचा व्यायाम आहे अशी गैरसमजूत गृहिणींमध्ये अथवा कर्मचाऱ्यांत आढळते. परंतु या दोन्ही कामामुळे खालेल्या अन्नाचे ज्वलनास विशेष साह्य होत नसल्याने, व्यायाम म्हणून ती निरूपयोगी ठरतात.

## ६ मधुमेही व्यक्तीने राखावयाची शारीरिक निगा

हात पाय आदि अवयवांची निगा - मधुमेही व्यक्तीने स्वतःचे हातपाय आदि अवयवांची इतर काही कटकटी निर्माण न होण्याचे दृष्टीने विशेष काळजी घेणे आवश्यक आहे. या अवयवांना इजा किंवा जखम होऊ देऊ नये आणि झालीच तर त्यावर तावडतोव इलाज करावा. कोणत्याही लहानमोठ्या आजाराकडे मधुमेही व्यक्तीने दुर्लक्ष करू नये. सतत पादत्राणे वापरल्याने पायाच्या इजा टळू शकतील. हातापायाची नखे नखे-कापायाच्या यंत्राणे किंवा धारदार कात्रीने चौकोनी कापावीत. शक्यतो आंघोळीनंतर नखे कापावीत कारण तेव्हा ती विशेष मऊ असतात.

पथ्ये आणि शारीरिक निगा - मधुमेह संपूर्णपणे वरा कधीच होत नसल्याने, वर सांगितलेली पथ्ये आणि शारीरिक निगा आयुष्यभर व्रत म्हणून पाळावीत. मधुमेही व्यक्तीने आपले वजन आणि मूत्र यांची तपासणी किमान महिन्यातून एकदा, व शारीरिक तापासणी आणि रक्ताची परीक्षा वर्षातून किमान एकदा करावी. असे नियंत्रण करणारी व्यक्ती आपले उर्वरित सारे आयुष्य पूर्णत्वाने भोगू शकते.

डोळे हृदय आणि मूत्रपिंडाचे विकार - मधुमेह जुनाट होऊन शरीरात टाण मांडून वसल्याने डोळे, हृदय, आणि मूत्रपिंड, यांचे आजर संभवतात. मधुमेहामुळे निर्माण

होणारे अंधत्व (डायबेटिक रेटिनोपथी) जवळजवळ असाध्य असून तिचे प्रमाणही वाढते आहे. मधुमेहजन्य मूत्रपिंडविकार (डायबेटिक नेफ्रोपथी) मधुमेही -वालरूणांत, आणि मधुमेहजन्य हृद्रोग (डायबेटिक कोरोनरी डिजीज) हे मध्यमवयीन लोकांत विशेष आढळतात. मधुमेही रूणांचे मृत्युही वंशी अशा प्रकारच्या दुष्परिणामामुळे होतात.

प्रतिबंधक उपाय - मधुमेहाचे मूळ कारण अद्याप समजलेले नाही, त्यामुळे त्याच्या प्रतिबंधाचे हमखास उपाय सांगणे कठीण आहे. तथापि निम्नलिखित प्रतिबंधक उपायांनी त्यास काही अंशी आळा घालता येईल. (अ) लठ्ठता नियंत्रण - मधुमेह प्रतिबंधाचा महत्वाचा सामाजिक प्रभावी उपाय म्हणजे समाजतील ३५ वर्षांवरील व्यक्तीचे लठ्ठपणाचे प्रमाण कमी करणे हा होय. विशेषतः ज्या घरात मधुमेहाची अनुवंशिक परंपरा आणि पूर्वतिहास आहे, आणि ज्यांचे काम बैठक्या स्वरूपाचे आहे त्यांना लठ्ठपणा नको त्यांनी या वावतीत विशेष काळजी घेणे अगत्याचे आहे. (ब) आहार नियंत्रण - मधुमेहग्रस्त व्यक्तीने आपले वजन आहार नियंत्रण आणि शारीरिक व्यायाम यांच्या साह्याने कमी केले असता त्यांच्या रक्तातील साखरेचे प्रमाण निश्चितपणे कमी होऊन मधुमेहाचे नियंत्रण होते.



त्याचपमाणे ज्या व्यक्तीचा मधुमेही होण्याकडे कल असेल त्यांचे वावरीत हेच उपाय मधुमेहाचा प्रतिबंध करतात. द्या मधुमेह होण्याचा संभव फार कमी होतो. भारतातील व्यक्तींच्या मदमात शारीरिक वजनाचे आकडे अ परिपत्रकात दिले आहेत. त्यापेक्षा अधिक वजन लढतानिदर्शक मानावे. (क) मधुमेही व्यक्तीचे विवाह - अनुवंशिक मधुमेही घराण्यां विवाह नको. मधुमेही स्त्री पुरुषाचे, अथवा मधुमेह अनुवंशिक असणाऱ्या दोन घराण्यातील व्यक्तीचे विवाह शक्यतो टाळावेत. तसेच मधुमेही स्त्रीचा गेग अतिसंततीमुळे वाढण्याची शक्यता असल्याने, तिचे कुटुंबनियोजन करावे. (ड) प्रथम अवस्थेत गेगनिदान - मधुमेह आटोक्यावाहेर जाऊ नये घामाटी, तसेच रक्तवाहिन्या, मज्जातंतू, मुत्रपिंड, डोळे, आणि इतर अवयव, यांवरील दिर्घकालीन मधुमेहामुळे होणारे दुष्परिणाम टाळण्यासाठी किंवा कमी करण्यासाठी, मधुमेहाचे प्राथमिक अवस्थेतच रोगनिदान करणे आवश्यक असते. या प्राथमिक अवस्थेत गेगाची काहीही वाद्यचिन्हे मधुमेही व्यक्तीमध्ये दिसत नसली, तरी या रोगामुळे शरीर आतून पोखरले जात असते. त्या काळात मधुमेहामुळे मानवी शरीरातील रक्तवाहिन्या, मज्जातंतू, मुत्रपिंड, डोळे, आणि अन्य अवयव यामध्ये काही ना काही विकृती कसाकसाने उत्पन्न होतात. प्राथमिक अवस्थेत असतानाच मधुमेहाचे निदान व नियंत्रण झाल्यास या विकृती टाळता येतील. (फ) शारीरिक तपासणी आवश्यक - विकृती टाळण्यासाठी ३५ ते ४० वर्षांपेक्षा अधिक वयाच्या, बैठे काम करणाऱ्या, आणि मधुमेहाचा अनुवंशिक दोष असणाऱ्या हरएक व्यक्तीने वर्षातून किमान एकदा,

मधुमेहाची परीक्षा करून घ्यावी असे आगधाने सुचवावेम वाटते. या दृष्टीने मधुमेह चिकित्सेची खात्रीची परीक्षा म्हणजे जेवणानंतर २ तासांनी संशयित व्यक्तीच्या रक्ताची शर्करेच्या पमाणामाटी तपासणी करणे होय. रक्ताची तपासणी करणे शक्य न झाल्यास शर्करेच्या प्रादुर्भावासाठी मूत्राची तपासणी करावी. मूत्रात शर्करेचे पमाण आढळल्यास, संशयित मधुमेही व्यक्तीस ५० गॅल ग्लुकोज सोडावाटे देऊन तदनंतर दोन तासांनी त्याच्या रक्ताची शर्करापरीमाणे मोजमापासाठी तपासणी करावी. तरुण वयातील मधुमेह नियंत्रणासाठी इन्शुलिनचे इंजेक्शन तज्ञ डॉक्टरांचे सल्ल्याने घेणे हा एकमेव उपाय आहे. ही इंजेक्शन स्वतःचे स्वतः घेण्याचे तज्ञ मधुमेही व्यक्तीने आत्मसात करणे आवश्‍यक आहे. चालीःगोनंतरच्या उतारवयात निनांण झालेल्या मधुमेहाच्या विकृती टाळण्यासाठी आहारनियंत्रण, व्यायाम, मधुमेहप्रतिबंधक औषधे, आणि हातापायाची तसेच कातडीची व्यक्तिगत निगा, हे चार प्रमुख प्रतिबंधक इलाज त्यांची माहिती वर दिली आहे. (ढ) मधुमेह विषयक लोकजागृती व शिक्षण - मधुमेह कसा होतो, तो कसा नियंत्रित करावा, त्यासाठी तपासणी करावी. मधुमेही व्यक्तीचे वजन कसे आटोक्यात ठेवावे, तसेच आहारनियंत्रण व्यायाम व औषधे, याचा मेळ कसा राखावा यासंबंधी लोकजागृती आवश्यक आहे. मधुमेह हा जन्माचा सोवती असून त्याच्या पथ्याहारातील डिलाई आणि अतिरिक्त अन्नभक्षण हे साक्षात घमटूतांना नियंत्रण देण्यामागे आहे. हे सर्वांच्या मनावर पुन्हा पुन्हा ठसविले पाहिजे. प्रस्तुत पुस्तिकेचे प्रमुख उद्दिष्टही तेच आहे.

## ७ मधुमेही व्यक्तीसाठी सामान्य सूचना

आपण हे भरपूर खाऊ शकता - हिरव्या पालेभाज्या, टोमॅटो, काकडी, मुळा, लिंबूसार, (क्लीन सूप), ताक.

आपण हे खाऊ नये (खावयाचे असल्यास तितक्याच उण्यांकाचे इतर पदार्थ कमी करावेत) - गूळ, साखर, मिठाई, चॉकलेट, मोरंवा, सरबते, केक (सर्व प्रकारचे), पुडिंग, फळांचे रस (स्वॅश), आइस्क्रीम, गेव्ही, वटाटे, द्राक्षे, केळी, वियर, वाईन आणि इतर मद्ये.

आपण आजारी पडल्यास - आपली प्रकृती विघडल्यास आपल्याला कदाचित नेहमीपमाणे जेवण घेता येणार

नाही. त्यावेळी इन्शुलिन किंवा गोळ्या घेणे बंद करू नये. आवश्यक तेवढे उण्यांक मिळतील असे पातळ अन्नपदार्थ घ्यावेत. डॉक्टरांचा सल्ला घ्यावा.

कठीण समय येता - आपल्या जिज्ञान किंवा परममध्ये नेहमी ग्लुकोजच्या गोळ्या ठेवा. साखरेची पुडी सुध्दा चालेल. 'इन्शुलिन रिअॅक्शन' च्या वेळी ती उपयोगी पडेल. तुम्हाला कधी भोवळ आल्यासारखे वाटल्यास किंवा घाम येऊन डोळ्यापुढे अंधारल्यासारखे वाटल्यास, दोन मुठी साखर खा आणि थोडा वेळ स्वस्थ बसून रहा.



पुंगे न खाल्यामुळे, उपवास किंवा लंघन केल्यामुळे, किंवा इच्छुलिन जास्त घेतल्यामुळे, असा त्रास होतो. बरील उपाय करूनही बरे न वाटल्यास डॉक्टरांना बोलवा. अर्थात मधुमेहाचे नियंत्रण न करता व्यायेंकडे संपूर्ण दुर्लक्ष केले तर रक्तातील साखरेचे प्रमाण फारच

वाढते. असे अनियंत्रित रोगी एकदम बेजुद्ध होण्याचा धोका असतो. त्याला “डायबेटिक शॉक” किंवा “मधुमेहाची बेजुध्दा” म्हणतात. ताबडतोब इच्छुलिन टाचले तर यावर उपाय होतो नाहीतर मृत्यु येण्याचा संभव असतो.

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## ८ मधुमेही व्यक्तीसाठी आदर्श आहाराची परिपत्रके

(मधुमेही व्यक्तीसाठी उपयुक्त अशी आदर्श आहाराची निर्मालिखित परिपत्रके पुढे दिली आहेत)

(१)	१२००	उष्णांकाचा	आकाहार
(१ अ)	१२००	उष्णांकाचा	मांसाहार
(२)	१५००	उष्णांकाचा	आकाहार
(२ अ)	१५००	उष्णांकाचा	मांसाहार
(३)	१८००	उष्णांकाचा	आकाहार
(३ अ)	१८००	उष्णांकाचा	मांसाहार
(४)	२०००	उष्णांकाचा	आकाहार
(४ अ)	२०००	उष्णांकाचा	मांसाहार

परिपत्रक (५) साखरेच उष्णांक देणारे अन्नपदार्थ

परिपत्रक (६) भाज्या आणि फळे यांमधील पिष्टमय पदार्थांचे प्रमाण

परिपत्रक (७) दृष्टिक्षेपान उष्णांक (कॅलरीज)

परिपत्रक (८) काही प्रतिनिधिक पदार्थांतील उष्णांक आणि प्रथिने



## परिपत्रक १

सुमारे १२०० उष्णांक (कॅलरीज) मिळतील असा एक दिवसाचा शाकाहार

पदार्थ	प्रमाण	वजनमाप	उष्णांक
सकाळचा चहा			(२२)
नेहमीप्रमाणे दूध घातलेला पण साखरेशिवाय चहा	१ कप	१४० मि. लि	२२
न्याहारी			(२०९)
उपीट	१ वाटी	११० ग्रॅम	६३
पाव	१ काप	२० ग्रॅम	५००
लोणी	चमचाभर	७ ग्रॅम	५३
ताजे दूध (मलई काढलेले)	१ कप	१४० मि. लि	४३
डुपारचे जेवण			(४८३)
भात	१ वाटी	११० ग्रॅम	१०५
ज्वारीची भाकरी	१ चतकोर	७० ग्रॅम	१५०
पालेभाजी (पालक)	१ वाटी	८५ ग्रॅम	१७५
कांद्याची कोशिंबीर	१ लहान कांदा	३३ ग्रॅम	३१
ताक (थोडे मीठ घालून)	१ वाटी	१५० मि. ली	२२
मधल्या वेळेचे खाणे			(१७१)
पोहे, लिंबाची लहान फोड	अर्धी वशी	५३ ग्रॅम	१४९
चहा, दूध घातलेला पण साखरेशिवाय	१ कप	१४० मि. ली	२२
रात्रीचे जेवण			(३१५)
पोळी तूप न लावता	१	३० ग्रॅम	९०
गवारीची भाजी	१ वाटी	१०० ग्रॅम	१००
आमटी	अर्धी वाटी	७५ ग्रॅम	७५
टोमॅटोची कोशिंबीर	२ लहान टोमॅटो	१०० ग्रॅम	२८
ताक ( थोडे मीठ घालून )	१ वाटी	१५० ग्रॅम	२२



## परिपत्रक १ (अ)

सुमारे १२०० उष्णांक (कॅलरीज) मिळतील असा एक दिवसाचा मांसाहार

पदार्थ	प्रमाण	वजनमाप	उष्णांक
सकाळचा चहा			(२२)
नेहमीप्रमाणे दूध घातलेला पण साखरेशिवाय चहा	१ कप	१४० मि.लि.	२२
न्याहरी			(२०९)
पाव	१ काप	२० ग्रॅम	५०
लोणी	थोडेसे	५ ग्रॅम	३४
उकडलेले अंडे	१ लहान	३६ ग्रॅम	६३
चहा नेहमीप्रमाणे दूध व साखर घातलेला	१ कप	१४० मि.लि.	६२
डुपारचे जेवण			(४८३)
भात	१ वाटी	११० ग्रॅम	१०५
ज्वारीची भाकरी	१ चतकोर	७० ग्रॅम	१५०
पालेभाजी (पालक)	१ वाटी	८५ ग्रॅम	१७५
कांद्याची कोशिंबीर	१ लहान कांदा	३३ ग्रॅम	३१
ताक (थोडे मीठ घालून)	१ वाटी	१५० मि.लि.	२२
मधल्या वेळेचे खाणे			(१७१)
पोहे, लिंबाची एक लहान फोड	अर्धी वशी	५२ ग्रॅम	१४९
चहा नेहमीप्रमाणे दूध घातलेला पण साखरेशिवाय	१ कप	१४० मि.लि.	२२
रात्रीचे जेवण			(३१५)
मटन विर्याणी	अर्धी वाटी	५२ ग्रॅम	१२२
पोळी तूप न लावता	१	३० ग्रॅम	९०
आमटी	अर्धी वाटी	७५ मि.लि.	७५
टोमॅटोची कोशिंबीर	२ लहान टोमॅटो	१०० ग्रॅम	२८



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## परिपत्रक २

सुमारे १५०० उष्णांक (कॅलरीज) मिळतील असा एक दिवसाचा शाकाहार

पदार्थ	प्रमाण	वजनमाप	उष्णांक
सकाळचा चहा			(६२)
नेहमीप्रमाणे दूध साखर घातलेला चहा	१ कप	१४० मि. लि	६२
न्याहारी			(२०९)
उपीट	१ वाटी	११० ग्रॅम	६३
पाव	१ काप	२० ग्रॅम	५००
लोणी	चमचाभर	७ ग्रॅम	५३
ताजे दूध (मलई काढलेले)	१ कप	१४० मि. लि	४३
दुपारचे जेवण			(५७८)
भात	१ वाटी	११० ग्रॅम	१०५
ज्वारीची भाकरी	१ चतकोर	७० ग्रॅम	१५
पालेभाजी (पालक)	१ वाटी	८५ ग्रॅम	१७५
आमटी	अर्धी वाटी	७५ मि. ली	७५
कांद्याची कोशिंबीर	१ मध्यम कांदा	५५ ग्रॅम	५१
ताक (थोडे मीठ घालून )	१ वाटी	१५० मि. ली	२२
मधल्या वेळेचे खाणे			(२११)
पोहे, लिंबाची लहान फोड	अर्धी वशी	४३ ग्रॅम	१४९
चहा (नेहमीप्रमाणे दूध व साखर घातलेला)	१ कप	१४० मि. ली	६२
रात्रीचे जेवण			(४४०)
भात, अर्धा चमचा तूप	१ वाटी	११३ ग्रॅम	१२५
पोळी तूप न लावता	१	३० ग्रॅम	९०
भाजी	१ वाटी	१०० ग्रॅम	१००
आमटी	अर्धी वाटी	७५ मि. ली	७५
टोमॅटोची कोशिंबीर	२ लहान टोमॅटो	१०० ग्रॅम	२८
ताक (थोडे मीठ घालून)	१ वाटी	१५० ग्रॅम	२२



परिपत्रक २ (अ)

सुमारे १५०० उष्णांक (कॅलरीज) मिळतील असा एक दिवसाचा मांसाहार

पदार्थ	प्रमाण	वजनमाप	उष्णांक
सकाळचा चहा			(६२)
नेहमीप्रमाणे दूध साखर घातलेला चहा	१ कप	१४०० मि.लि	६२
न्याहरी			(२०९)
पाव	१ काप	२० ग्रॅम	५०
लोणी	थोडेसे	५ ग्रॅम	३४
उकडलेले अंडे	१ लहान	३६ ग्रॅम	६३
चहा नेहमीप्रमाणे दूध व साखर घातलेला	१ कप	१४० मि.लि.	६२
दुपारचे जेवण			(५७८)
भात	१ वाटी	११० ग्रॅम	१०५
ज्वारीची भाकरी	१ चतकोर	७० ग्रॅम	१५०
पालेभाजी (पालक)	१ वाटी	८५ ग्रॅम	१७५
आमटी	अर्धी वाटी	७५ मि.ली	७५
कांद्याची कोशिंबीर	१ मध्यम कांदा	५५ ग्रॅम	५१
ताक (थोडे मीठ घालून)	१ वाटी	१५० मि.ली	२२
मधल्या वेळेचे खाणे			(२११)
पोहे, लिंबाची एक लहान फोड	अर्धी वशी	४३ ग्रॅम	१४९
नेहमीप्रमाणे दूध साखर घातलेला चहा	१ कप	१४० मि.लि.	६२
रात्रीचे जेवण			(४४०)
मटन विर्याणी	१ वाटी	१४० ग्रॅम (त्यात २६ ग्रॅम मटन)	२४७
पोळी तूप न लावता	१	३० ग्रॅम	९०
आमटी	अर्धी वाटी	७५ मि.लि.	७५
टोमॅटोची कोशिंबीर	२ लहान टोमॅटो	१०० ग्रॅम	२८



## परिपत्रक ३

सुमारे १८०० उष्णांक (कॅलरीज) मिळतील असा एक दिवसाचा शाकाहार

पदार्थ	प्रमाण	वजनमाप	उष्णांक
सकाळचा चहा			(६२)
नेहमीप्रमाणे दूध साखर घातलेला चहा	१ कप	१४० मि. लि	६२
न्याहारी			(३३०)
उपीट	१ वाटी	११ ग्रॅम	६३
पाव	१ काप	२० ग्रॅम	५०
लोणी	चमचाभर	७ ग्रॅम	५३
दूध (म्हशीचे)	१ कप	१४० मि. लि	१६४
दुपारचे जेवण			(५७८)
भात	१ वाटी	११० ग्रॅम	१०५
ज्वारीची भाकरी	१ चतकोर	७० ग्रॅम	१५०
पालेभाजी (पालक)	१ वाटी	८५ ग्रॅम	१७५
आमटी	अर्धी वाटी	७५ मि. ली	७५
कांद्याची कोशिंबीर	१ मध्यम कांदा	५५ ग्रॅम	५१
ताक (थोडे मीठ घालून )	१ वाटी	१५० मि. ली	२२
मधल्या वेळेचे खाणे			(३४०)
पोहे, लिंबाची लहान फोड	१ वशी	९९ ग्रॅम	२७८
चहा (नेहमीप्रमाणे दूध व साखर घातलेला)	१ कप	१४० मि. ली	६२
रात्रीचे जेवण			(४९०)
भात, अर्धा चमचा तूप	१ वाटी	११३ ग्रॅम	१२५
पोळी, १ चमचा तूप लावलेली	१	३५ ग्रॅम	१३०
गवारीची भाजी	१ वाटी	१०० ग्रॅम	१००
आमटी	अर्धी वाटी	७५ मि. ली	७५
टोमॅटोची कोशिंबीर	२ मध्यम टोमॅटो	१३६ ग्रॅम	३८
ताक (थोडे मीठ घालून)	१ वाटी	१५० ग्रॅम	२२



## परिपत्रक ३ (अ)

सुमारे १८०० उष्णांक (कॅलरीज) मिळतील असा एक दिवसाचा मांसाहार

पदार्थ	प्रमाण	वजनमाप	उष्णांक
सकाळचा चहा			(६२)
नेहमीप्रमाणे दूध साखर घातलेला चहा	१ कप	१४० मि.लि	६२
न्याहरी			(३३०)
पाव	२ काप	४० ग्रॅम	१००
लोणी	चमचाभर	६ ग्रॅम	४२
उकडलेली अंडी	२ लहान	७२ ग्रॅम	१२६
चहा नेहमीप्रमाणे दूध व साखर घातलेला	१ कप	१४० मि.लि.	६२
दुपारचे जेवण			(५७८)
भात	१ वाटी	११० ग्रॅम	१०५
ज्वारीची भाकरी	१ चतकोर	७० ग्रॅम	१५००
पालेभाजी (पालक)	१ वाटी	८५ ग्रॅम	१७५
आमटी	अर्धी वाटी	७५ मि.ली	७५
कांद्याची कोशिंबीर	१ मध्यम कांदा	५५ ग्रॅम	५१
ताक (थोडे मीठ घालून)	१ वाटी	१५० मि.ली	२२
मधल्या वेळेचे खाणे			(३४०)
पोहे, लिंबाची एक लहान फोड	१ वशी	९९ ग्रॅम	२७८
नेहमीप्रमाणे दूध साखर घातलेला चहा	१ कप	१४० मि.लि.	६२
रात्रीचे जेवण			(४९०)
मटन विर्याणी	१ वाटी	१४० ग्रॅम (त्यात २६ ग्रॅम मटन)	२४७
पोळी, १ चमचा तूप लावलेली	१	३५ ग्रॅम	१३०
आमटी	अर्धी वाटी	७५ मि.लि.	७५
टोमॅटोची कोशिंबीर	२ मध्यम टोमॅटो	१३६ ग्रॅम	३८



## परिपत्रक ४

सुमारे २००० उष्णांक (कॅलरीज) मिळतील असा एक दिवसाचा शाकाहार

पदार्थ	प्रमाण	वजनमाप	उष्णांक
सकाळचा चहा			(९३)
नेहमीप्रमाणे दूध साखर घातलेला चहा	१½ कप	२१० मि. लि	९३
न्याहारी			(३८०)
उपीट	१ वाटी	११० गॅम	६३
पाव	२ काप	४० गॅम	१००
लोणी	चमचाभर	७ गॅम	५३
दूध (म्हशीचे)	१ कप	१४० मि. लि	१६४
दुपारचे जेवण			(६०७)
भात	१ वाटी	११० गॅम	१०५
ज्वारीची भाकरी	१ चतकोर	७० गॅम	१५०
पालेभाजी (पालक)	१ वाटी	८५ गॅम	१७५
आमटी	अर्धो वाटी	७५ मि. ली	७५
कांद्याची कोशिंबीर	१ मध्यम कांदा	५५ गॅम	५१
दही	१ वाटी	१०० मि. ली	५१
मधल्या वेळेचे खाणे			(३४०)
पोहे, लिंबाची लहान फोड	१ वशी	९९ गॅम	२७८
चहा (नेहमीप्रमाणे दूध व साखर घातलेला)	१ कप	१४० मि. ली	६२
रात्रीचे जेवण			(५८०)
भात, अर्धा चमचा तूप	१ वाटी	११३ गॅम	१२५
पोळी, ½ चमचा तूप लावलेली	२	६५ गॅम	२२०
गवारीची भाजी	१ वाटी	१०० गॅम	१००
आमटी	अर्धो वाटी	७५ मि. ली	७५
टोमॅटोची कोशिंबीर	२ मध्यम टोमॅटो	१३६ गॅम	३८
ताक (थोडे मीठ घालून)	१ वाटी	१५० गॅम	२२



## परिपत्रक ४ (अ)

सुमारे २००० उष्णांक (कॅलरीज) मिळतील असा एक दिवसाचा मांसाहार

पदार्थ	प्रमाण	वजनमाप	उष्णांक
सकाळचा चहा			(६२)
नेहमीप्रमाणे दूध साखर घातलेला चहा	१ कप	१४० मि. लि.	६२
न्याहरी			(४०६)
पाव	१ काप	२० ग्रॅम	५०
लांणी	थोडेसे	५ ग्रॅम	३४
आमलेट	२ लहान अंड्याचे	८४ ग्रॅम	२६
चहा नेहमीप्रमाणे दूध व साखर घातलेला	१ कप	१४० मि. लि.	६२
दुपारचे जेवण			(६०७)
भात	१ वाटी	११० ग्रॅम	१५
ज्वारीची भाकरी	१ चनकांग	७० ग्रॅम	१५०
पालंभाजी (पालक)	१ वाटी	८५ ग्रॅम	१७५
आमटी	अर्धो वाटी	७५ मि. ली.	७५
कांद्याची कोशिंबीर	१ मध्यम कांडा	५५ ग्रॅम	५१
दही	१ वाटी	१०० मि. ली.	५१
मधल्या वेळेचे खाणे			(३४०)
प्रांठ, लिंबाची एक लहान फांड	१ वशी	९९ ग्रॅम	२७८
नेहमीप्रमाणे दूध साखर घातलेला चहा	१ कप	१४० मि. लि.	६२
रात्रीचे जेवण			(५८५)
मटन बिर्याणी	१ वाटी	१४० ग्रॅम (त्यात २६ ग्रॅम मटन)	२५७
पोळी, १/२ चमचा तूप लावलेली	२	६५ ग्रॅम	२२०
आमटी	अर्धो वाटी	८० मि. लि.	८०
टोमॅटोची कोशिंबीर	२ लहान टोमॅटो	१०० ग्रॅम	२८



## परिपत्रक ५

### सारखेच उष्णांक (कॅलरीज) देणारे पदार्थ

(या माहितीचा उपयोग आहारात आवश्यक तेवढे उष्णांक ठेवूनही रुचिवैचिज्य आणण्यासाठी हाईल)

### (१) प्रत्येकी ५० उष्णांक (कॅलरीज) देणारे गट

	(अ) फळे
१५ ग्रॅम	खजूर सुके अंजीर मनुका
६० ग्रॅम	फणस अल्फान्सी आंवा कवठ
७५ ग्रॅम	केली चेरी चिक्कू अननस डाळिव चेरीज
९० ग्रॅम	अननस सफरचंद काजूची फळे लिवू
१०० ग्रॅम	अंजीर पेरू जरदाळू पीच
१२० मि.लि.	उसाचा रस (लहान ग्लास)
१५० ग्रॅम	पपई ग्रेप फ्रूट
१७५ ग्रॅम	कलिंगड
	(ब) भाज्या
२१ ग्रॅम	वटाट्याच्या काचच्या (तळलेल्या)
३० ग्रॅम	फणसाच्या आठळया रताळे
४२ ग्रॅम	सुरण
५० ग्रॅम	हिरवा मटार उकडलेले वटाटे
६० ग्रॅम	डवल वीन्स
७५ ग्रॅम	हिरवी (कच्ची) केली
९० ग्रॅम	आवळा वीट गवार कारली
१०० ग्रॅम	घाजर कांदा कच्चा फणस
१२० ग्रॅम	कैरी भेंडी
१५० ग्रॅम	तांवडा मुळा वांगी नवलकोल कॉलीफ्लॉवर
१८० ग्रॅम	तांवडा भोपळा
२०० ग्रॅम	पांढरा मुळा पडवळ टोमॅटो दोडकी तोंडली शेवग्याच्या शेंगा
२५० ग्रॅम	माठ कोहळा काकडी दुधी भोपळा

## परिपत्रक ५

### सारखेच उष्णांक (कॅलरीज) देणारे पदार्थ

(या माहितीचा उपयोग आहारात आवश्यक तेवढे उष्णांक ठेवूनही रुचिवैचिज्य आणण्यासाठी होईल)

### (२) प्रत्येकी १०० उष्णांक (कॅलरीज) देणारे गट

(अ) दुधाचे पदार्थ	
२५ ग्रॅम	खवा
३० ग्रॅम	चीज
५० ग्रॅम	आइस्क्रीम
९० मि.लि.	म्हशीचे दूध
१४० मि.लि.	गाईचे दूध
१७० ग्रॅम	घाईच्या दुधाचे दही
(ब) मांसाहारी पदार्थ	
५५ ग्रॅम	वकऱ्याचे मांस ( मटन )
६० ग्रॅम	अंडी
७० ग्रॅम	वकऱ्याचे यकृत ( लिव्हर )
८० ग्रॅम	कोंवडीचे मांस
८५ ग्रॅम	डुकराचे मांस कोळंबी



## परिपत्रक ६

### भाज्या आणि फळे यांमधील पिष्टमय पदार्थांचे प्रमाण

#### (अ) भाज्यांमधील पिष्टमय पदार्थांचे प्रमाण

(१) शेकडा १ ते ५ टक्के प्रमाणाच्या भाज्या :

सर्व पालेभाज्या, आंवट चुका, चाकवत, कारले, काकडी, शेवग्याच्या शेंगा, हिरव्या मिरच्या, घोसाळे, सॅलडची पाने, कोहळा, दोडका, पडवळ, पालक, टोमॅटो, तोंडली, पांढरा मुळा .

(२) शेकडा ६ ते १० टक्के प्रमाणाच्या भाज्या :

वीट, भेंडी, वांगी, गाजर, कॉलीफ्लॉवर, चवळी, अळूची पाने, कोथिंबीर, दुधी भोपळा, मेथी, भोपळी मिरच्या, अंवाडी, कैरी, कच्ची पपई, कच्चा फणस, नवलकोल, पुदिना, केळफूल, तांवडा, भोपळा, शेंपू, टाकळा .

(३) शेकडा ११ ते १५ टक्के प्रमाणाच्या भाज्या :

गवार, डवल वीन्स, कच्चे केले, कांदा .

(४) शेकडा १६ ते ३० टक्के प्रमाणाच्या भाज्या :

आर्वी, मटार, फणसाच्या आठळया, वटाटा, शिंगाडा, सुरण रताळे, उपरोक्त भाज्यांपैकी (३) आणि (४) गटातील भाज्या तोलून मापून किंवा डॉक्टरांना विचारूनच खाव्यात .

#### (ब) फळांमधील पिष्टमय पदार्थांचे प्रमाण

(१) शेकडा ३ ते ५ टक्के प्रमाणाची फळे : कलिंगड

(२) शेकडा ६ ते १० टक्के प्रमाणाची फळे : अंजिर, संत्रे, मोसंबी, पपई, स्ट्रॉबेरी

(३) शेकडा ११ ते १५ टक्के प्रमाणाची फळे : आवळा, सफरचंद, जरदाळू, काजूचे फळ, काली द्राक्षे, पेरू, जांभूळ, आंबा (रायवळ) , अननस, डालिव, रास्पबेरी .

(४) शेकडा १६ ते ३० टक्के प्रमाणाची फळे : कच्चे किंवा पिकलेले केले, बोर, हिरवी द्राक्षे, फणस, आंबा (हापूस), चिक्कू, सिताफल, कवठ .

## परिपत्रक ७

## दृष्टिक्षेपात उष्णांक (कॅलरीज)

१०० ग्रॅम पदार्थातून मिळणारी प्रथिने स्निग्ध पदार्थ पिष्टमय पदार्थ आणि उष्णांक

कच्चे पदार्थ	प्रथिने (ग्रॅम)	स्निग्ध पदार्थ (ग्रॅम)	पिष्टमय पदार्थ (ग्रॅम)	उष्णांक
तृणधान्ये	८.०	२.०	७३.०	३४०
कडधान्ये (वाळवलेली)	२३.०	१.५	५९.०	३४०
भाज्या (शेकडा ३ ते ५ टक्के पिष्टमय पदार्थ)	१.०	—	३.०	१६
भाज्या (शेकडा ६ ते १० टक्के पिष्टमय पदार्थ)	२.०	—	८.०	४०
भाज्या (शे.११ ते १५ टक्के पिष्टमय पदार्थ)	२.०	—	१२.०	५६
भाज्या (शे.१६ ते ३० टक्के पिष्टमय पदार्थ)	२.०	—	२२.०	९६
फळे (शे.३ ते ५ टक्के पिष्टमय पदार्थ)	१.०	—	३.०	१६
फळे (शे.६ ते १० टक्के पिष्टमय पदार्थ)	१.०	—	८.०	४०
फळे (शे.११ ते १५ टक्के पिष्टमय पदार्थ)	१.०	—	१२.०	५६
फळे (शे.१६ ते ३० टक्के पिष्टमय पदार्थ)	१.०	—	२२.०	९६
कठिण कवचाची फळे (नटसह )	१९.०	६१.०	१८.०	६१०
शेंगदाणे	३१.५	३९.०	१९.०	५६१
काजू	२१.०	४७.०	२२.३	५९६
खोवरे (कोरडे)	६.८	६२.३	१८.४	६६२
साखर गूळ	—	—	१००.९५	४००
तेल	—	१०.००	—	९००
लोणी, तूप	—	८१.९२	—	७२४ ८२८
म्हशीचे दूध	४.०	७.५	५.०	११७
गाईचे दूध	३.०	४.४	४.०	६७
दही	३.०	४.०	३.०	६०
चीज	२४.०	२५.०	६.०	३८४
मासे (ताजे)	१९.०	३.०	२.०	११०
मासे वाळलेले	६०.०	५.०	२.५	२९०
वकऱ्याचे मास (मटन)	१८.०	१३.०	—	१९४
कोंवडीचे मास (चिकन)	२६.०	१.०	—	१०९
अंडी	५.८	५.८	—	७५



## परिपत्रक ८

काही प्रातिनिधिक खाद्य पदार्थातील उष्णांक (कॅलरीज) आणि प्रथने

अनुक्रम	पदार्थाचे नाव	प्रमाण	वजनमाप	उष्णांक	प्रथिने ( ग्रॅम )
१	वटाटा वडा	१	३५ ग्रॅम	६०	१.६
२	भजी : कांद्याची	६	४५ ग्रॅम	१४४	२.८
	वटाट्याची	६	५५ ग्रॅम	२४०	४.१
३	भाकरी : ज्वारीची	१	२८० ग्रॅम	६००	१८.१
	वाजरीची	१	२५० ग्रॅम	६१	२०.०
४	पाव मध्यम जाड	१ काप	२० ग्रॅम	५०	१.५
	( लोणी लावून	१ काप	२७ ग्रॅम	१०३	१.५
५	केक ( स्पॉन्ज )	१	५५ ग्रॅम	२११	४.०
६	पोली ( तुपाशिवाय )	१	३० ग्रॅम	९०	२.४
	पोली ( एक चमचा तूप लावून )	१	३५ ग्रॅम	१३०	२.४
७	कोंवडी भाजलेली (चिकन रोस्ट)	१ पीस	१०० ग्रॅम	१९०	२९.६
८	चिवडा ( पोह्यांचा )	१ वशी	५५ ग्रॅम	१९०	६.६
	चिवडा ( वटाट्याचा )	१ वशी	४५ ग्रॅम	२८०	४.७
९	कॉफी (नेहमीप्रमाणे दूध व साखर घातलेली)	१ कप	१४० मि.लि	९०	१.६
१००	दहीवडा	१	४५ ग्रॅम	८३	३.१
११	डोसा (मसाला)	१	१५० ग्रॅम	३८३	५.२
१२	फळभाजी (गवारीची)	१ वाटी	१०० ग्रॅम	१००	३.२
१३	पालेभाजी (पालक)				
	(३ते ५ टक्के पिष्टपदार्थ असलेली)	१ वाटी	८५ ग्रॅम	१७०	३.४
१३ अ	पीठ लावलेली पालेभाजी	१ वाटी	८५ ग्रॅम	२८०	८.२
१४	घुलावजाम	२	५५ ग्रॅम	८०	१.०
१५	गुळाची पोली	१	५५ ग्रॅम	२०	४.०
१६	इडली ( मध्यम आकाराची )	१	४० ग्रॅम	६५	२.३
१७	सांवार	१ वाटी	७५ मि.लि	७५	३.१
१८	जिलेबी	१	१८ ग्रॅम	१००	०.७
१९	करंजी (कोरड्या खोवऱ्याची करंजी)	१	२० ग्रॅम	१००	१.४
	(ओल्या खोवऱ्याची)	१	३६ ग्रॅम	१६०	१.५
२०	खमण ढोकळा	१ वशी	५५ ग्रॅम	११५	२.७
२१	लाडू (रब्याचा)	१	४० ग्रॅम	१७५	२.१
	लाडू (वेसनाचा)	१	३० ग्रॅम	१४०	२.८
२२	मेदूवडा	१	३८ ग्रॅम	७५	४.०
२३	आमलेट (अंड्याचे)	१	४२ ग्रॅम	१३०	५.७
२४	पराठा	१	८५ ग्रॅम	२४५	६.०

अनुक्रम	पदार्थाचे नाव	प्रमाण	वजनमाप	उष्णांक	प्रथिने ( ग्रॅम )
२५	पोहे (तिखट मिठाचे)	१ वशी	९५ ग्रॅम	२७५	५.२
२६	पॉफेट मासा (तळलेला)	१ पीस	३३ ग्रॅम	७०	०.९
२७	पुरणाची पोळी	१	९५ ग्रॅम	३३०	८.५
२८	पुरी	१	१२ ग्रॅम	६३	८.५
२९	भात	१ वाटी	११० ग्रॅम	१०५	२.१
३०	सावुदण्याची खिचडी	१ वाटी	११० ग्रॅम	२८५	५.८
३१	सामोसा (वटाटयाचा)	१	४५ ग्रॅम	१४०	१.६
३२	शेव	१ वशी	६० ग्रॅम	१९०	६.८
३३	शिरा (गोडाचा)	१ वाटी	१२० ग्रॅम	३५५	५.२
३४	चहा(नेहमीप्रमाणे दूध व साखर घालून)	१ कप	१४० मि.लि	६२	१.०
३५	टोस्ट लोणी लावून	१ काप	३० ग्रॅम	१५०	२.८
३६	तिखट मिठाचा सांजा ( उप्पीट )	१ वाटी	११० ग्रॅम	६३	५.०
३७	उसळ (हरभऱ्याची)	१ वशी	१४० ग्रॅम	१०६	५.१
३८	वरण ( तुरीच्या डाळीचे )	१ वाटी	२०० ग्रॅम	१७६	११.८

येथे वापरलेली परिमाणे : १ मध्यम वाटी : १५० मि.लि.  
 १ लहान वाटी : ८० मि.लि.  
 १ लहान चमचा तूप : ५ ग्रॅम

(कच्च्या पदार्थाच्या रासायनिक पृथक्करणावरून वर दिलेले आकडे काढलेले आहेत .  
 पदार्थ शिजवताना तसेच त्यावर अन्य प्रक्रिया करताना यात बदल होणे शक्य असते .  
 तरी पण सर्वसाधारण कल्पना येण्यास या माहितीचा उपयोग होऊ शकेल)

डॉ.न.शं. देवधर, डायरेक्टर ऑल इंडिया इन्स्टिट्यूट ऑफ हायजीन अँड पब्लिक हेल्थ कलकत्ता, डायवेटिक असोसिएशन ऑफ इंडिया (पुणे विभाग) पुरस्कृत, प्रबोधन मास कम्युनिकेशन फौंडेशन, पुणे ४, १९७८ .



## मधुमेहातील आहार

### प्रास्ताविक

प्रौढ वयात होणाऱ्या मधुमेहावरील उपाचारात आहार नियमन, व्यायाम, औषधे, आणि वैयक्तिक आरोग्य यांचा समावेश होतो. त्यापैकी आहार नियमन महत्वाचे आहे. मात्र वजन आटोक्यात ठेवण्यासाठी व्यायाम करणेही तितकेच महत्वाचे आहे. विशेषतः मध्यम वयानंतर होणाऱ्या मधुमेहात आहार नियमनाला केंद्रितताही इतर पर्याय नाही. म्हणून आहार

नियमनाची स्थल-कलानुसृत माहिती प्रत्येक मधुमेही व्यक्तीला असणे अत्यंत आवश्यक आहे. मधुमेहातील आहाराची तत्त्वे आणि नेहमी खाण्यात येणाऱ्या पदार्थासंबंधी आवश्यक ती माहिती संकलित करण्याचा हा एक प्रयत्न आहे. मधुमेही व्यक्तींना आपला आहार ठरविताना ही माहिती निश्चितच उपयोगी पडेल, अशी आम्हाला आशा वाटते.

### आहारनियमन का?

काही पथ्य आणि फेरवदल वगळल्यास मधुमेह्याचा आहार चारचौघांसारखाच असतो. साखर, वटाटे यासारखे कार्बोदके विपुल प्रमाणात असलेले पदार्थ मात्र खाण्याचे टाळावे. उलट पालेभाज्यांसारखे कार्बोदके कमी असणारे पदार्थ जरा जास्त खाल्ले तर पोट भरल्याचे समाधान मिळते, आणि कॅलरीज (उष्मांक) कमी प्रमाणातच मिळतात.

अनेक वर्षे प्रमाणावाहेर खाल्ल्यामुळे लठ्ठपणा येतो. साधारणपणे २१ वर्षांच्या सुमारास शरीराची वाढ होण्याचे थांबते. त्यावेळी जे वजन असते ते प्रमाण मानावे. त्यापेक्षा जास्त वजन हे शरीरात चरबी जमा झाल्यामुळे वाढलेले असते. जशी कामात वढती मिळत जाते, किंवा मनुष्य स्थिर होऊ लागतो, तसे त्याचे वजन बहुतेक वाढत गेल्याचे दिसते. अर्थात यालाही अपवाद असतातच. स्त्रियांमध्ये तर दर वाढतपणानंतर वजन वाढते. ते कमी क्वचितच होते. सुदैवाने कुटुंब नियोजनाने तीन मुलांचे बंधन घातले आहे. मासिक पाळी बंद होण्याचे सुमारास सुद्धा वजन वाढण्याची शक्यता असते. असे वजन वाढल्यामुळे मधुमेह होण्याची शक्यता वाढते.

अन्नाची आवश्यकता वाढल्या वया वरोवर कमी होत जाते. शरीराच्या चलन वलनाला आवश्यक असेल त्यापेक्षा अधिक खाल्ल्याने लठ्ठपणा येतो. तसेच

इन्शुलिनची गरजही वाढते. स्वादुपिंडात इन्शुलिन पुरेशा प्रमाणात निर्माण होत नाही. अशा तऱ्हेने इन्शुलिनची गरज आणि पुरवठा यांचा मेळ वसत नाही, आणि मधुमेह होण्यासारखी परिस्थिती निर्माण होते. म्हणून 'आहार नियमन' ही मधुमेहावरील उपचाराची गुरु किल्लीच म्हटली पाहिजे. 'आहार नियमन' करण्याऐवजी एकादे औषध घेऊन चालत नाही हे प्रत्येकाने लक्षात ठेवले पाहिजे. औषधे केवळ पूरक उपाय म्हणूनच घेता येतील. आहारविषयक पथ्ये प्रत्येक मधुमेह्याने आयुष्यभर काटेकोरपणे पाळली पाहिजेत, तरच त्याला दीर्घायुष्य लाभेल. सुरुवातीपासूनच आहार नियमन करून, वजन प्रमाणावहेर वाढूच दिले नाही तर फार उत्तम. हे मात्र अवघड आहे.

इन्शुलिन आणि आहार यांचा मेळ जमण्यास खूप प्रयत्न करावे लागतात. जेवणातील अनियमितपणा आणि वेतालपणा यामुळे हा मेळ विघडतो. त्यातूनच आणखी अडचणी उद्भवतात. याचा निष्कर्ष एवढाच की मधुमेह्याने त्याला ठरवून दिलेल्या आहारयोजने प्रमाणेच खाल्ले पाहिजे. एकंदरीत पाहता, कमी कॅलरीज (उष्मांक) मिळतील असाच आहार मधुमेह्याने घेतला पाहिजे. त्यासाठी मधुमेह्याचे वय, स्त्री पुरुष भेद, उंची, आणि वांधा याला अनुरूप वजन किती ते माहित असावयास पाहिजे (कोष्टक क. १ पहा).



साधारणतः भरपूर काम करणाऱ्या मनुष्याला दररोज त्याच्या वजनाच्या दर किलोस २५ ते ३० कॅलरीज मिळतील इतका आहार आवश्यक आहे. प्रथिने, स्निग्ध पदार्थ, आणि जीवनसत्वे यांचा योग्य प्रमाणात समावेश असणारे निरनिराळे पदार्थ त्यासाठी खाण्यात आले पाहिजेत. केवळ भातासारखे पदार्थ खाण्याचे टाळून हा प्रश्न सुटणार नाही. तर कदाचित सगळ्या आहारातच सुमारे २५ ते ५० टक्के कपात करावी लागेल. आवश्यकतेप्रमाणे निरनिराळ्या कॅलरीजच्या आहारात कशाचा समावेश करता येईल ते कोष्टक क.२ ते ५ यामध्ये दाखविले आहे. त्यांचा मार्गदर्शक म्हणून उपयोग होईल. वैयक्तिक आवडी निवडी आणि पध्दतीनुसार काही फेरवदल करावे लागतील इतकेच. तसे केल्याने आहारात रूक्षपणा वाटणार नाही. रूक्षपणामुळे कित्येकदा आहारातील पथ्य सांभाळले जात नाही. कॅलरीज दृष्ट्या सारख्याच महत्वाच्या पदार्थांची माहिती कोष्टक क.६ ते ९ मध्ये दिली आहे. त्यांच्या सहाय्याने कोणत्या पदार्थांची अदलावदल करून रुचि वैचित्र्य येईल ते समजेल.

आपले वजन कमी करावयाचे असल्यास ते टप्प्याटप्प्याने कमी करा. अघोरी उपवास करू नका. त्याने एकदम थकवा येतो. कदाचित चेहऱ्यावर सुरकुत्याही दिसतील. मधुमेह्याने तर उपवास टाळलाच पाहिजे. आहार नियंत्रणाच्या यशस्वितेचे गमक म्हणजे तुमचे वजन! आहार नियमन करूनही तुमचे वजन वाढत राहिल्यास तुम्हाला आहारात आणखी कपात करावी लागेल. (जेवढ्या कॅलरीज तुम्ही घेता त्यापेक्षा कमी कॅलरीज खर्च होतात, श्रम कमी, होतात असा याचा अर्थ झाला.)

मधुमेह्याला कधी घेरी येते घाम येतो, आचके येतात, आणि शुध्द जाते. रक्तातील साखर विशिष्ट पातळीपेक्षा कमी झाली म्हणजे असे होते. अशावेळी मधुमेह्याला तावडतोव साखर देणे आवश्यक असते. रक्तातील साखरेचे प्रमाण एकदम कमी होण्याची दोन कारणे आहेत. इन्शुलिनचा डोस जास्त होणे किंवा

आहाराची विभागणी योग्य प्रकारे न होणे. असे प्रसंग टाळण्यासाठी, इन्शुलिनचा प्रकार लक्षात घेऊन आहाराची योग्य विभागणी करावयास पाहिजे (कोष्टक क.२ ते ५).

निदान सहा महिने अशा तऱ्हेने आहार नियमन करून पहा. आपल्याला निश्चित अधिक उत्साह वाटेल. तो एकदा अनुभवल्यावर आपले वजन वाढावे असे तुम्हाला कधीही वाटणार नाही; आणि आपल्याला खरोखर किती माफक आहाराची जरूरी आहे हेही समजेल. आपण आहार ठरवून घ्या; आणि त्याप्रमाणे खा. यश आपलेच आहे!

### मार्गदर्शक तत्वे

१. मधुमेह्याला खास वेगळा आहार लागत नाही. घरातील इतर मंडळीसाठी तयार केलेल्या स्वयंपाकापैकीच काही भाग, त्यात गूळ साखर वगैरे घालण्यापूर्वी, आणि भाज्यांना पीठ लावण्यापूर्वी, वेगळा ठेवला येईल.
२. मधुमेह्याच्या वैयक्तिक आवश्यकते प्रमाणे आहार योजना ठरवावी लागते.
३. डॉक्टरांनी ठरवून दिलेल्या कॅलरीज (उष्मांक) मिळतील एवढाच आहार घ्यावा. सणावारी व लग्नाच्या पंगतीत हे विसरू नये.
४. विशिष्ट औषधे घेत असलेल्या मधुमेह्याने लंघन करू नये.
५. आहार नियमनाच्या यशाचे गमक म्हणजे कोणत्याही परिस्थितीत आपले वजन ठराविक मर्यादितेच राहिले पाहिजे (कोष्टक क.९ पहा).
६. मधुमेह्याने दररोज माफक व्यायाम करावा. वजन वाढू न देण्यास मदत होईल.
७. नियमितपणे मूत्रतपासणी करून मधुमेह आटोक्यात आहे किंवा काय यावर लक्ष ठेवावे.
८. ठराविक कालंतराने प्रकृति तपासून घ्या आणि केव्हाही काही शंका वाटल्यास डॉक्टरांचा सल्ला घ्या.

टिप: ह्या लेखातली कोष्टक आणि मागल्या लेखातली परिपत्रक एकच आहेत.

कोष्टक १ वेगळे; कोष्टक २ अ = परिपत्रक १; कोष्टक २व = परिपत्रक १ अ; कोष्टक ३ अ = परिपत्रक २; कोष्टक ३ व = परिपत्रक २अ; कोष्टक ४अ = परिपत्रक ३; कोष्टक ४व = परिपत्रक ३ अ;



कोष्टक ५अ = परिपत्रक ४; कोष्टक ५व = परिपत्रक ४अ; कोष्टक ६ = परिपत्रक ५;  
 कोष्टक ७ अ = परिपत्रक ६ अ; कोष्टक ७ व = परिपत्रक ६व;  
 कोष्टक ८ = परिपत्रक ८; कोष्टक ९ = परिपत्रक ७;  
 फक्त मधुमेह्यासाठीच = मागल्या लेखातली: ७ मधुमेही व्यक्तीसाठी सामान्य सूचना

**कोष्टक क १**  
**भारतातील २५ वर्षावरील स्त्री पुरुषांचे योग्य वजन**

उंची से.मी	वजन (किलोग्रॅम)		
	लहान वांधा	मध्यम वांधा	मोटा वांधा
<b>पुरुष</b>			
१५२	४५.५ - ४८.५	४९.५ - ५३.०	५२.० - ५६.०
१५५	४७.० - ५१.०	५०.५ - ५४.५	५३.५ - ५८.०
१५७	४८.५ - ५२.०	५२.० - ५५.५	५४.५ - ५९.०
१६०	५०.० - ५४.०	५३.० - ५७.०	५६.० - ६१.०
१६३	५१.५ - ५५.५	५४.५ - ५९.०	५७.५ - ६२.५
१६५	५२.५ - ५७.०	५६.० - ६०.०	५९.० - ६४.०
१६८	५४.५ - ५७.५	५७.५ - ६१.५	६१.० - ६६.०
१७०	५५.५ - ६०.०	५९.० - ६३.५	६२.५ - ६८.०
१७३	५७.० - ६१.५	६१.० - ६५.५	६४.० - ६९.५
१७५	५९.० - ६३.५	६२.५ - ६७.०	६६.० - ७१.५
१७८	६०.५ - ६५.०	६४.० - ६८.५	६७.५ - ७३.५
१८०	६२.० - ६७.०	६६.० - ७०.५	६९.० - ७५.५
१८३	६३.५ - ६८.५	६७.५ - ७२.०	७१.० - ७७.०
<b>स्त्रिया</b>			
१४७	४२.५ - ४५.५	४५.० - ४८.०	४७.५ - ५२.०
१५०	४३.० - ४६.०	४५.५ - ४९.०	४८.५ - ५२.५
१५२	४४.० - ४७.०	४६.५ - ५०.०	४९.५ - ५३.५
१५५	४५.० - ४८.०	४८.० - ५१.०	५०.५ - ५५.०
१५७	४६.० - ४९.५	४९.० - ५२.५	५२.० - ५६.५
१६०	४७.५ - ५१.०	५०.५ - ५३.०	५३.५ - ५८.०
१६३	४८.५ - ५२.५	५२.० - ५५.०	५४.५ - ५९.०
१६५	५०.० - ५४.०	५३.० - ५७.०	५६.५ - ६१.०
१६८	५१.५ - ५५.५	५४.५ - ५९.०	५८.० - ६३.०

१ सेमी = ०.४ इंच, १ इंच = २.५४ सेमी, १ किलोग्रॅम = २.२ पौंड, १ पौंड = ०.४५ किलोग्रॅम

\* Basic Preventive and Social Medicine ( गो.य.राणे प्रकाशन पुणे १९७१) या पुस्तकाच्या संपादकांच्या परवानगीने.

डॉ. न. शं. देवधर व इतर, इंडियन पब्लिक हेल्थ असोसिएशन, महाराष्ट्र राज्य शाखा, पुणे, १९७१.

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## आरोग्य संवर्धन

आरोग्य हा एक वसा आहे . घेतला वसा टाकू नका!

वैयक्तिक तसेच कौटुंबिक विकासाकरता आरोग्य संपादन व संरक्षण हे महत्वाचे साधन आहे . तसेच मानसिक स्वास्थ्याशिवाय आपण सुखाचा उपभोग व स्वाद घेऊ शकत नाही . कामधंदा नीट होत नाही मन लागत नाही आणि मग विकासाचा प्रश्नच उद्भवत नाही . आपले आरोग्याकडे लक्ष जाते ते केवळ आजारीपणातच . ही खेदाची गोष्ट आहे . “रोग टळो आणि वैद्य पळो” अशी म्हणच पडली आहे . केवळ डॉक्टरांवर अवलंबून राहून आरोग्य संपादन होणार नाही हे जरी सत्य असले तरी असे दुर्लक्ष करून आणि उपेक्षा दाखवून आरोग्याची निगा राखता येणार नाही . आरोग्याचे लेणे स्वकष्टाजीत असते . टे स्वतःचे जिम्मेदारीवरच मिळवावे लागते . अनेकांच्या सुदैवाने त्याचे आई वडिलांनी त्यांना आरोग्याचा वंशपरंपरागत आलेला ठेवा दिलेला असतो पण त्याचेवर सर्वस्वी विसंबून राहणे किंवा हा किल्ला अवेद्य किंवा अभय आहे असे समजणे म्हणजे एक फसवणूक ठरेल .

**आरोग्याची कल्पना** भारतीय संस्कृतीनुसार स्वास्थ्याची किंवा आरोग्याची कल्पना शारीरिक व मानसिक अवस्था एवढ्यापुरतीच संकुचित नसून त्याचे सामाजिक आणि वैचारिक (Spiritual) सुदृढता ह्यांचा मुलामा देऊन सुंदरपणे विकसित केलेली एक प्रकारची संपन्ता आहे . आपल्या अनेक परंपरा व रूढीचे उगम आरोग्याच्या वरील कल्पनेवर आधारीत आहेत . त्यांचा अनादर करून चालणार नाही . कालानुसार त्यात योग्य फरक करणे हे मात्र शास्त्रीयदृष्ट्या योग्यच आहे . आरोग्याचे करक आपले पोषण करणारे अन्न, हवापाणी, घरादार प्राणी वनश्री, इत्यादी, असणारा सर्व परिसर आणि मुख्य म्हणजे आपली दिनचर्या, राहणी, कामधंदा, संवयी, व्यायाम, जीवनाकडे पाहण्याची दृष्टी, वगैरे, अनेक गोष्टीत सामावलेले असते . किंवाहुना जीवन व आरोग्य ह्यांची

फारकत करता येणार नाही . हे दोन्ही परस्परांवर अवलंबून असतात .

**आरोग्य आणि टॉनिक्स** पुणे शहरातील तालमी आणि आखाडे प्रसिद्ध आहेत . टेथे अनेक तरूण आजसुद्धा तालीम करून शरीर कमावतात . त्याचप्रमाणे आरोग्य कमावण्यासाठी सतत प्रयत्न करावे लागतात . डॉक्टरांचे औषध रोगाकरताच असते . तसेच “टॉनिक “ व इतर मोठ्या प्रचारयंत्रणेद्वारा फैलावत असलेली आधुनिक प्रक्रिया केलेली “पौष्टिक अन्ने” ही सामाजिक फसवणूक आहे . ह्यात पैसा तर अकारण जातोच पण आरोग्य मात्र पदरात पडत नाही अर्थात लहान मोठ्या “औषधी” कंपन्या व व्यवसाय मात्र सर्व वाजूंनी सुदृढ व गवर होतात . नेहमी औषधे घेऊन विनाकारण जीवनसत्वे व “टॉनिक”च्या वाटल्या फस्त करून आरोग्य संपादनापेक्षा रोग निर्माण होण्याचाच संभव जास्त . तेव्हा शास्त्रीय

तर्कशुद्ध ज्ञान प्राप्त करा आणि गैरसमजुती अफवा जाहिरातवाजी इत्यादी आमिपे टाळा . आता हा आरोग्याचाच वसा कसा आहे, काय आहे, सोपा आहे, मात्र सोडता कामा नये . “काही गोष्टी अगदी नियमित करावयाची संवय पडली आणि काही पथ्ये, काही गोष्टी कटाक्षाने टाळावयाच्या (तांदुळातल्या खड्याप्रमाणे)” . शतायुषी व्यक्तींना आपण त्याचे दिर्घायुषी होण्याचे रहस्य विचारतो ह्यात काही रहस्य नसते . आपला जन्म झाला तो कृती करण्यासाठीच आयुष्य उपभोगावयाचे व आपल्या कृतीतून कौटुंबिक आणि सामाजिक जबाबदारी उत्तमरीतीने पार पाडणे ह्या श्रद्धेत जीवनानंद घेतला पाहिजे . असे हे आरोग्यदायक जीवन कोणते ह्याचे एक सोपे कोष्टक “पाळा आणि टाळा” ह्या लेखात देण्याचा प्रयत्न केलेला आहे हा उपक्रम आपल्याला नक्कीच उपयोगी पडेल .



	मित्र पाळा व जोडा		शत्रू टाळा व फोडा
	( अ ) सर्वसाधारण		
(१)	नियमितपणा सर्ववावतीत	(१)	अनियमितपणा
(२)	वैयक्तिक स्वच्छता	(२)	मलीनता घाणेगडेपणा
(३)	०यायाम	(३)	आराम आळस
(४)	सकस पण मोजका आहार	(४)	एकाच प्रकारचे अन्न अजीर्ण
(५)	प्रसन्नता सुविचार पूजा अर्चा	(५)	वाईट विचार दुराचार
(६)	मित्र मैत्रीनी खेळाडूपणा इतरांना मदत	(६)	एकलकोंडेपणा स्वार्थ व्यसने कोणताही अतिरेक
(७)	आरोग्यदायक व स्वच्छ परिसर ह्यात पाणी मूत्र मैल्याची योग्य विल्हेवाट जमीन पाणी व हवा ह्यांचे प्रदूषण वगैरे सार्वजनिक व औद्योगिक आरोग्यातील वावींचा समावेश आहे	(७)	उकिरडा मैला सांडपाणी यांच्या योग्य विल्हेवाटावावत वेपवाई आळस घरातली घाण वाहेर इतरत्र टाकणे थुंकणे इत्यादी
(८)	सार्वजनिक आरोग्यावद्दल आदर व त्यात येणाऱ्या जवाबदाऱ्या	(८)	सार्वजनिक आरोग्यावद्दल वेजवावदारी आणि अनारस्था
	( ब ) कौटुंबिक		
(१)	एकत्र कुटुंब पध्दती	(१)	“दोघांचे” राज्य
(२)	मोठ्यांचा आदर व मान	(२)	इतरांचा अनादर
(३)	आहे त्यात समाधान व गोडवा	(३)	असमाधानी वृत्ती दुसऱ्यांशी तुलना
(४)	वैवाहिक पवित्रता चारित्र देवाण घेवाण वृत्ती आणि समझोता	(४)	इतरांचे दोष किंवा उणिवांना अवास्तव महत्त्व कोतेपणा बाहेरर०यालिपणा
(५)	सर्व शंकांचे निवारण आणि मिळते घेण्याची वृत्ती	(५)	मनात अढी ठेवणे आणि जुन्या गोष्टी उगाळत वसणे
(६)	इतरांचे ऐकून घेणे मुलांची वैशिष्ट्ये जाणणे व त्यांचे कौतुक करणे	(६)	एकलकोंडेपणा हठी वृत्ती
(७)	गप्पा आणि खेळीमेळीचे वातावरण	(७)	भांडणे आणि शिवागीळ
(८)	२० ते २५ वर्षे पर्यंत विवाह आणि लैंगिक शिक्षण	(८)	१८ वर्षाखालील किंवा ३५ वर्षांनंतरचे विवाह
(९)	एक किंवा दोन अपत्ये आणि बालसंगोपण सल्ला	(९)	“अष्टपुत्रा सौभाग्यवती .”
	( क ) संसार		
(१)	योग्य वेळी पहिला पाळणा	(१)	फार लवकर किंवा उशिरा पहिला पाळणा
(२)	दिवस गेल्याचा आनंद व नैसर्गिकता	(२)	दिवस गेल्यावर अतिकाळजी किंवा वेफिकीरपणा
(३)	प्रसूतिपूर्व चिकित्सा आणि मार्गदर्शन काटेकोर पालन	(३)	गरोदरपणावावत हलगर्जीपणा तज्ञांकडे न जाता अशिक्षित आणि अजाणकाऱ्यांकडे जाणे योग्य काळजी न घेणे सल्ला न मानणे .
(४)	प्रसूतिकरता योग्य व्यवस्था आणि उत्तम शुश्रूषा	(४)	रोगप्रतिबंधक लसी न घेणे किंवा दुसरी मात्रा विसरणे
(५)	प्रसूतिनंतरची देखभाल	(५)	चालढकल करणे घरगुती उपाय करणे मैत्रीनींचा अतीध्येखीपूर्ण सल्ला तज्ञांपेक्षा योग्य मानणे .
(६)	आरोग्य शिक्षण विशेषतः पोषण रोगप्रतिबंध व बालसंगोपनाविषयक	(६)	जादूटोणा व इतर वेडेवाकडे उपाय वैदूकडून गर्भपात वेळ घालवणे गर्भपाताला धोका आणि तोटे
(७)	बंध्यत्व चिकित्सा आणि त्यावर शास्त्रीय उपाय योजना	(७)	दरवर्षी गणेशोत्सवाप्रमाणे पाळणा हलवणे



मित्र पाळा व जोडा		शत्रू टाळा व फोडा	
(८)	पाळी चुकली पण मूल नको असेल तर १५ दिवसांचे आत डॉक्टरांचेकडे जाऊन पाळी चालू करणे	(८)	योग्य वेळी नसवंदी न करणे
(९)	संततिनियमन दोन मुलात ३ ते ४ वर्षे अंतर	(९)	मुलांचेकडे लक्ष न देणे आणि मुप्रजा निर्माण करण्याच्या राष्ट्रीय कर्तव्यावर भर न देणे
(१०)	पाळणा थांबवणे		
(११)	मुप्रजाजन मुटूढ खम्बीर आणि मुसंस्कृत संतती		
( ड ) स्वयंपाक			
(१)	पाणी प्रथम गरम करून शिजवण्याचे पदार्थ नंतर टाकणे	(१)	थंड पाण्यात भाज्या इ. पदार्थ घालून नंतर उकडणे
(२)	शिजवण्यास पुढील तेवढेच पाणी वापरणे	(२)	फाजील पाणी वापरून भाज्या व इतर अन्न पातळ बनवणे
(३)	पालेभाज्या व इतर नवलकोल मुळा ह्यांची पाने आणि काढांची पात ह्यांचा वापर	(३)	भाजीची खाण्यास योग्य अशी पाने स्वस्त वा नावडती म्हणून टाकून देणे
(४)	अन्न फार शिजवणे टाळून साधारणतः १५ मिनिटे उकडणे	(४)	भात वरण भाज्या इत्यादीतले जास्त पाणी ओतून टाकणे
(५)	अन्न ताजे व गरम वाढणे	(५)	अन्न परत परत गरम करणे
(६)	अन्न पदार्थात विविधता सर्व धान्ये डाळी कडधान्ये भाज्या इत्यादींचा आलपालटून वापर	(६)	एकाच प्रकारचे धान्य डाळ वगैरेचा सातत्याने वापर फक्त वटाटे कोवी वगैरे भाज्या खाणे
(७)	अन्न ठेवण्यास शीतपेटीचा किंवा थंड जागी जालीच्या वंद कपाटाचा वापर	(७)	अन्न फळे भाज्या वगैरे उघड्यावर गरम जागी ठेवणे आणि त्यावर माशा व धूळ वसू देणे
(८)	अन्न पदार्थ खरेदी करताना केवळ स्वस्तपणा न पाहता गुणांची पारख करणे	(८)	अवास्तव स्वस्त पदार्थात भेसळ असते हे न मानता खरेदी करणे खाण्याचा सोडा वापरणे
(९)	स्वयंपाकघर व भांड्याची स्वच्छता स्वयंपाक करण्याचे किंवा पदार्थ हाताळणे वाढणे ह्या कामापूर्वी हात स्वच्छ धुणे	(९)	अस्वच्छता अन्न दूषित होईल अशी परिस्थिती सोवळ्याचे कल्पनेचा अनादर पाण्याचा अपूरा वापर
(१०)	अन्न हे ईश्वर आहे	(१०)	अन्नाचा अनादर करणे आणि ते नावडते म्हणून वाया घालवणे
( ग ) रोगप्रतिबंधक			
(१)	घराच्या समोरामोर्गच्या खिडक्या मोकळ्या ठेवून घरात खेळती हवा ठेवणे	(१)	वंदीस्त घरात राहणे दारे खिडक्या वंद करणे ऊन घरात येण्यास वाव न देणे
(२)	शक्यतोवर तांब्याचे पात्रात आणि ते शक्य नसेल तर कोणत्याही स्वच्छ पात्रात पिण्याचे पाणी साठवणे २-३ दिवस ठेवलेले पाणी वापरणे पाणी नळाद्वारे किंवा खाम पाणी पात्रानूनच वाहेर काढणे	(२)	पाणी अस्वच्छ पात्रात साठवणे नळ चालू झाल्यावर लगेच पाणी घेणे घाईने पाण्यात हात बुचकळणे पाणी कोणत्याही प्रकारे दुषित करणे वाया घालवणे
(३)	गेज कचरा काढणे पेटीत साठवणे गेज सार्वजनिक पेटीच्या आत टाकणे कचरा वंद पेटीत टाकणे	(३)	कचरा साठू देणे केर नीट न काढणे शेजारचे घरी ढकलणे किंवा कचरा पेटीचे वाहेर टाकणे
(४)	मंडासाचा वापर तो साफ व कोरडा ठेवणे नंतर प्रत्येक वेळी हात सावणाने व भरपूर पाण्याने स्वच्छ करणे	(४)	मुलांना कागदावर किंवा रस्त्यावर बसवणे मंडास गलिच्छ ठेवणे हात काळजीपूर्वक साफ न करणे .
(५)	सभोवताली रस्ते आणि सार्वजनिक जागा व इतर जागी स्वच्छता राखणे	(५)	रस्त्यावर सार्वजनिक जागा व इतर मोकळ्या जागी घाण करणे .



	मित्र पाळा व जोडा		शत्रू टाळा व फोडा
	( ग ) रोगप्रतिबंधक		
(६)	माशा डास व इतर किटकांपासून संरक्षणाचे व त्यांचा नाश करण्याचे उपाय समजाऊन घेणे व त्यांचा वापर करणे	(६)	माशा झुगळे डास यांना मित्र मानून अगत्याने निमंत्रण देणे
(७)	सकस आणि माफक आहार, जेवणात विविधता आणि नियमितपणा	(७)	फार आवडी निवडी एकाच प्रकारचे जेवण दूषित व शिळे अन्न
(८)	योग्य वजन कायम राखणे	(८)	लठ्ठपणा वजनात फार बदल
(९)	निर्जंतुक केलेले पाणी	(९)	दूषित पाणी
(१०)	मच्छरदाणीचा रोज वापर	(१०)	इतः स्ततः थुंकणे
(११)	नियमित आणि माफक व्यायाम	(११)	आळस आराम जास्त दमणे
(१२)	शांत झोप कामानंतर विश्रांती, चांगले छंद, खेळ, सहली, मित्र	(१२)	जाग्रणे घरवसलेपणा व्यसने निरद्योगीपणा अतिदाव चिंता
(१३)	शांतपणा अतिकाळजी मुक्तता स्वातंत्र्य .	(१३)	तापटपणा वेफिकीरपणा अतिदाव चिंता
(१४)	कामाच्या प्रकाराप्रमाणे योग्य त्या प्रकाराची योजना	(१४)	अंधाच्या किंवा फार प्रखर प्रकाशात काम दाट छाया किंवा डोळे दिपवणारा उजेड
(१५)	पायापेक्षा जरा मोठी पादत्राणे	(१५)	घट फार सैल फाटलेली किंवा फार झिजलेली पादत्राणे
(१६)	उन्हाळ्यात पांढरे पातळ सौम्य रंगाचे सैलसर कपडे तर हिवाळ्यात रंगीत जाड गरम आणि अंगावरोवर वसणारे कपडे	(१६)	अस्वच्छ न धुतलेले आणि गवाळे कपडे विलायती पध्दती कपड्यांचे अंधानुकरण
(१७)	जेवणापूर्वी, शौच किंवा संडासानंतर, स्वयंपाकापूर्वी, खाण्याचे जिन्नस हाताळणे किंवा वाढण्यापूर्वी, रोग्याचे शुश्रूषेनंतर, किंवा केव्हाही हात रोगजंतूनी दूषित झाल्याची शंका असेल तेव्हा लगेच दोन्ही हात सावण व भरपूर वाहत्या पाण्याने काळजीपूर्वक स्वच्छ धुणे	(१७)	हात अस्वच्छ ठेवणे आणि रोगांना आमंत्रण देणे घाण हातांनी अन्न व इतर वस्तू दूषित करणे आणि हातावरचे जंतू दुसरीकडे पसरवून रोग फैलावण्यास मदत करणे .
(१८)	दर १-२ वर्षांनी आरोग्य तपासणी करणे व आरोग्य सल्ला घेणे आणि आजारीपणात वेळ न घालवता डॉक्टरांचा सल्ला व उपचार घेणे व अमलात आणणे .	(१८)	आरोग्यावद्दल उदासीनता रोग्याचे कपडे भांडी निर्जंतुक न करता वापरणे रोग अमावर काढणे डॉक्टरांना न सांगता इतरांचे ऐकणे औषधोपचार टाळणे
(१९)	धनुर्वात आणि इतर सांसर्गिक रोगांचे विरूद्ध योग्य लसीचे ठराविक डोस नियमितपणे आणि कोष्टक किंवा सल्ल्याप्रमाणे घेणे	(१९)	स्वतःला आणि इतर कुटुंबियांना रोग प्रतिबंधक लसीचे डोस टाळणे मुलांना व इतरांना माहिती नसणे
(२०)	आरोग्य शिक्षण आरोग्यावद्दल आस्था आणि कळकळ	(२०)	आरोग्यावद्दल हेळसांड आणि वेजवावदारी .

ही यादी वाढवता येईल पण त्यामुळे खास फायदा होणार नाही आरोग्य संवर्धनासाठी प्रत्येकाने आरोग्यशिक्षण घेणे कमप्राप्त आहे . अर्थात हे आचरणात आणले नाही तर ज्ञानाचा उपयोग आपल्या कामास येणार नाही . आपल्या डॉक्टरांचे पण मार्गदर्शन लागेल . तसेच सार्वजनिक आरोग्य व त्यावावट आपल्या जवावदाच्या ह्यांचेकडे पण दुर्लक्ष होता काम नये . स्त्रीयांना समाजात

मानाचे साजेसे स्थान दिले तरच त्या 'शतायुषी' होण्याचे फळ समाजाला आणि त्यातून राष्ट्राला मिळेल . 'शतायुषी' होण्यावरोवरच त्यांचा आनंद कार्यतत्परता आणि प्रगती ह्यावरोवर संगम झाला पाहिजे . ही दोन महत्वाची सामाजिक अम्मे संभाळली नाहीत तर मात्र "शतायुषी" होणे ही एक आपत्ती होईल . शंभर वर्षे भरणे आणि शतायुषीतील निवड आपल्या हातात आहे नाही का?



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## निरोगी जीवनपद्धती आणि दिनचर्या

माणसाला जर त्याची जीवनपद्धती योग्य प्रकारे बदलता आली तर निरोगी आयुष्य जगण्याचे उद्दिष्ट साध्य करता येईल. ज्या प्रकारे आपण आपला रोजचा कार्यक्रम आखतो आणि पार पाडतो त्याला दिनचर्या म्हणतात. निरोगी आयुष्यासाठी दिनचर्या कशी असावी हे आयुर्वेदामध्ये सांगितले आहे. सर्वच माणसांना एकाच प्रकारच्या दिनचर्येचा अवलंब करणे शक्य नसते. व्यापारी, व्यावसायिक, शेतकरी, कारागीर, कलावंत, विद्यार्थी, खेळाडू आणि कामकरी वर्ग यांच्या जगण्याच्या पद्धती वेगवेगळ्या असणारच. तथापि आपल्या गरजांचे भान राखून निरोगी आयुष्य जगण्यासाठी दिनचर्येमध्ये किमान कोणत्या गोष्टीची आवश्यकता आहे हे ठरविणे शक्य आहे.

**मूलभूत बाबी** माणसागणिक दिनचर्या वेगवेगळी असू शकते. इतकेच नव्हे तर एकच माणूस वेगवेगळ्या वेळी आणि परिस्थितीत निरनिराळ्या तऱ्हेने जगत असतो. तेव्हा त्यात लवचिकपणा राखणे जरूरच असते. त्या दृष्टीने निरोगी दिनचर्या कशी आखावी आणि अमलात आणावी याचे काही टोकांमध्ये ठरविणे सोयीचे होईल. त्यामध्ये पुढील बाबींचा अंतर्भाव होतो

**१) नियमितपणा :** आपल्या दिनचर्येमध्ये नियमितपणा राखल्यास आपणास उत्साही आणि ताजेतवाने वाटते. आपल्या शरीराचे देखील काही ताल, तोल आणि चढउतार असतात. नियमित संवयीमुळे त्यांच्याशी मेल राखणे हितकारक होते. अन्नग्रहण, शरीरशुद्धी, निद्रा, विश्रांती, काम या साऱ्यांमध्ये वक्तशीरपणा आपल्या सर्व शरीरक्रिया व नियमन ह्यांचा खूपच फायदा होतो. वेळेच्या वेळी अन्न घेतल्यास पचन निःसारण आणि रूपांतर यांचे चक्र व्यवस्थित सांभाळले जाते. त्याचमध्ये स्वच्छतेच्या संवयीचाही उपयोग होतो.

**२) संयम :** निरोगी आयुष्यासाठी संयम म्हणजे सोनेरी नियम आहे असे म्हणायला हरकत नाही. अन्न विश्रांती काम किंवा करमणूक या सर्वच वावतीत काटेकोर पणे संयम वाळगणे फार महत्वाचे आहे. यापैकी कोणत्याही वावतीत अतिरेक किंवा मर्यादा मोडून वागणे हानिकारक ठरू शकते. आपल्या प्राचीन वाड्यात मुद्धा मांगून टावले आहे की अति सर्वत्र वर्जयेत. म्हणजे कोणत्याही

वावतीत टोकाला जाऊ नये आणि नेहमी मध्यम मार्ग अनुसरवा.

**३) वैयक्तिक स्वच्छता :** स्वतःच्या शरीराची निगा आणि स्वच्छता राखणे हा तर निरोगी वर्तनाचा पायाच गणला जातो. जीवनपद्धतीवर त्याचा विलक्षण प्रभाव पडतो. कोणतेही व्यसन किंवा वाईट संवयी यामुळे शरीराच्या शुद्धीला धोका पोहावत असतो. आधुनिक जीवनपद्धतीमधील कित्येक गोष्टी स्वतःच्या स्वच्छतेच्या आणि शुद्धीच्या दृष्टीने पातक ठरतात.

**४) आहार :** स्थूलपणा आणि शरीरमाद्य यांचा प्रादुर्भाव खादाडपणा आणि आळशीपणा यातून होतो. हे सत्य जगभर मान्य झालेले आहे. आहारावर नियंत्रण राखल्यामुळे प्रकृती चांगली राहते एवढेच नव्हे तर त्यामुळे किती तरी संसर्गजन्य विकार टाळले जातात. पचनसंस्थेच्या दुखण्यापासून थेट रक्तदाव हृदयविकार मधुमेह कर्करोग या सर्वांना भरमसाठं खाण्यापिण्यामुळे निमंत्रण दिल्यासारखे होते. आहारावावत घ्यावी तेवढी दक्षता थोडीच आहे. उदाहरणार्थ मिताहार राखावा घरगुती पदार्थ सेवन करावेत चरवीयुक्त किंवा तेलकट गोष्टी वर्ज्य कराव्यात. हिरव्या पालेभाज्या आणि फळे खावी ताजे अन्न घ्यावे मांसाहारी पदार्थांचा वापर कमी करावा. हे अगदी साधे नियम आहेत. प्रयोगांमधून हे निर्विवाद सिद्ध झाले आहे की उष्मांक कमी केल्याने (कॅलरीज) प्राणिमात्रांच्या आयुर्मानामध्ये वाढ होऊ शकते. त्यामुळे वजन आटोक्यात राहते. लठ्ठपणामुळे किती तरी विकार निर्माण होऊ शकतात.

**५) हालचाल आणि व्यायाम :** शरीर चपळ असणे माणसाच्या तंदुरुस्तीचे रहस्य आहे. पुरेशी हालचाल न झाल्यास शरीराची क्षमता आणि चैतन्य नष्ट होऊ लागते. मानसिक शारीरिक आणि वागण्याच्या संवयींवर चैतन्य अवलंबून असते. बैठा व्यवसाय आणि निष्क्रीय जीवनपद्धती यामुळे आरोग्याला इजा पोचू शकते. निव्वळ काम आणि फावल्या वेळातील उद्योग याशिवाय नियमित आणि पद्धतशीर व्यायाम करणे हे निरोगीपणाच्या दृष्टीने अत्यावश्यक आहे. व्यायामाच्या पद्धती अनेक असू शकतात. परंतु जेणे करून सर्व शरीराला आणि विशेषतः पाठीचा कणा पचनसंस्था व



श्वसनसंस्था यांना पुरेसा व्यायाम मिळेल असा व्यायाम असणे आवश्यक आहे. त्यामुळे माणूस सक्षम राहून अधिक चांगले काम करू शकतो. वयोमानानुसार योग्य तो व्यायाम निवडता येतो. मग ते सूर्यनमस्कार असोत कवायत असो किंवा पोहणे वा मर्दानी खेळ असोत. मात्र व्यायामाच्या वावतीतसुद्धा मर्यादा राखणे आवश्यक आहे. वाढत्या वयानुसार ३० ते ४० मिनिटांचा व्यायाम आठवडयातून तीन चार वेळा करणे इष्ट ठरेल. यावावत वेळ न मिळणे योग्य ती जागा नसणे हवामान वाईट असणे तय्येतीची किरकोळ कूरकूर असा कुठलाही वहाणा आड येऊ देऊ नये. योग्य तेवढा व्यायाम केल्यामुळे चैतन्य आणि उत्साह यात वाढ होते. आरोग्याचे नियम पाळणे महत्वाचे असते. व्यायामाच्या द्वारे शारीरिक क्षमता टिकवून धरणारी माणसे भोवताली पुष्कळ असतात त्यांचा आदर्श वाळगावा. आधुनिक जीवनात जलद चालण्या सारखा दुसरा उत्तम व्यायाम प्रकार नाही. रमतगमत चालणे किंवा धावणे याच्या मधली गती प्रत्येकाने ठरवावी. नियमित आणि तालवद्ध चालण्यामुळे श्वसनसंस्था चांगली राखली जाते. पळणे नाचणे किंवा अशा प्रकारच्या कोणत्याही जोराच्या हालचालीपेक्षा जलद गतीने चालणे हा आरोग्याचा उत्तम मंत्र आहे. त्यासाठी कोणतेही विशेष साहित्य लागत नाही किंवा खर्च येत नाही. योग्य प्रकारचे मोजे आणि पादत्राण असले म्हणजे पुरे. पादत्राणे वापरल्यामुळे कोणत्याही प्रकारची इजा संभवत नाही किंवा वा सांधे वा स्नायू यांच्यावर ताण येत नाही. जलद चालण्यामुळे होणारे फायदे भरपूर आहेत. उदाहरणार्थ स्वास्थरक्षण वजन नियंत्रित राखणे, चपळता, स्नायूंना वळकटी, ताण कमी करणे, क्षमतावाढ, आणि विकारांना चार हात दूर ठेवणे. नियमित चालण्यामुळे वार्धक्यातील हाडे ठिसूळ होणे किंवा कॉलेस्टेरॉलचे प्रमाण वाढणे हेही टळू शकते. साधारणपणे ३ ते ४ किलोमीटरची जलद चाल नियमित आणि सतत करणे आरोग्यदायी आहे. निरनिराळ्या वयाच्या स्त्री पुरुषांना नियमित चालण्यामुळे होणाऱ्या फायद्याची आणि त्यामुळे टाळल्या जाणाऱ्या विकारांची नुसती जंत्री द्यावयाची म्हटली तरी एका स्वतंत्र लेखाचा विषय होईल इतके चालण्याचे महत्त्व अनन्यसाधारण आहे.

६) आत्मविश्वास आणि सद,विचार : मनाची योग्य ती काळजी घेणे त्याला पद्धतशीर प्रशिक्षण देणे हे देखील निरोगी जीवनासाठी तितकेच महत्वाचे आहे. तर्कशुद्ध विचार करणे आणि कोणत्याही समस्येसाठी पर्यायी

मार्गाचा शोध घेण्यामुळे आपले वर्तन चोख परिणामकारक आणि व्यावहारिक राखता येते. आत्मविश्वास आणि रास्त विचारसगणी यामुळे जीवनातील मूल्यांची निश्चिती होऊ शकते. निव्वळ चिंता करीत वमण्यामुळे काहीच साध्य होत नाही. भोवतालच्या सतत बदलणाऱ्या वातावरणाविषयी कुतूहल जागृत ठेवणे हा मनासाठी उत्तम खुराक आहे. आशावादी राहण्यामुळे मनाला वळकटी प्राप्त होते. सुदृढ शरीरामध्ये सुदृढ मन असे म्हटले जाते त्याच्या उलट म्हणणेदेखील तितकेच खरे आहे.

७) व्यवसाय : माणसाजवळ काहीतरी निश्चित चरितार्था -चे साधन नसेल तर जीवनाला योग्य दिशा लाभत नाही. अर्थात असे साधन प्राप्त होणे अनेक गोष्टींवर अवलंबून असते. ज्याप्रमाणे स्वतःची आवड निवड, शिक्षण आणि प्रशिक्षण, कौटुंबिक आणि आर्थिक संबंध, संधी, तसेच अंगी असलेली स्फूर्ती किंवा उद्योजकता, वगैरे. चरितार्थाचे योग्य साधन मिळाल्यामुळे निष्कारण ताण चिंता धोका किंवा वैफल्य निर्माण होत नाही. उलट चांगले छंद सवयी व्यायाम वगैरेमध्ये फावला वेळ कारणी लावता येतो.

८) ताणतणाव : एखाद्या कठीण परिस्थिती सामना करता न येणे किंवा निर्माण झालेल्या समस्यांना उत्तर न सापडणे यातून ताणतणाव निर्माण होत असतात. निष्कारण किंवा सतत चिंता करण्यानेही ताण निर्माण होतात. तसे पाहिल्यास माणसाला इतक्या आश्चर्यकारक सक्षम शरीराची देणगी लाभलेली आहे की कोणत्याही ताणतणावाला तोंड देणे, तो दूर करणे, आणि पुन्हा नव्या दमाने उत्साहाने कामाला सुरुवात करणे. त्याला शक्य असेल तर कामात थोडासा बदल करून किंवा संगीतासारख्या एखाद्या छंदाचा अवलंब करून मन मोकळे करून घेता येते. तणावाच्या स्थितीतून मुक्तता कशी करून घ्यायची हे ज्याने त्याने जाणले पाहिजे, ठरविले पाहिजे. पुष्कळदा असुरक्षितपणाच्या भावनेतून ताण निर्माण झालेला असतो. अशा वेळी मन गुंतविण्यासाठी माणूस एखाद्या व्यसनाकडे वळतो परंतु त्यामुळे ताण कधीच दूर होत नाही हा सार्वत्रिक अनुभव आहे. एखाद्या कलेमध्ये किंवा छंदामध्ये स्वतःला रमविणे हेच शहाणपणाचे ठरते.

तणावांमुळे अनेक शारीरिक व मानसिक दुष्परिणाम निर्माण होतात. अल्सर, निद्रानाश, असे कितीतरी छोटे मोठे विकार जडू शकतात हे घडू नये



यासाठी समतोल वृत्ती राखणे अत्यंत आवश्यक असते. वास्तव आणि अपेक्षा यामध्ये फार अंतर पडल्याने तणावाची मानसिकता निर्माण होऊ शकते म्हणून ज्या गोष्टी शक्य नाहीत किंवा असू शकणार नाही त्याच्यामागे कधीच लागू नये. आपली मर्यादा, खिलाडूपणा ओळखणे आणि स्विकारणे हा मानसिक संतुलनाचा उत्तम उपाय आहे. भोवतालच्या परिस्थितीशी आणि माणसांशी जुळवून घेणे आणि दैनंदिन कटकटीपासून क्षणभर तरी दूर नेईल अशी एखादी आवड निर्माण करणे हे या दृष्टीने फार महत्वाचे आहे. आयुष्य आहे तसे स्विकारले म्हणजे वरेच प्रश्न सुटू शकतात. याचा अर्थ असा नव्हे कि माणसाने महत्वाकांक्षा वाळगूच नये पण आपल्या मर्यादा राखणे हे देखील सूझपणाचे असते. त्याच्याच वरोवरीने जरूर तेवढी विश्रांती आणि करमणूक लाभेल याची खबरदारी प्रत्येकानेच घ्यायलाच हवी

**प्राथमिक गरजा :** अखेर माणसाचे सूख किंवा समाधान हे त्याच्या जवळील पैसा, मालमत्ता, किंवा सामाजिक दर्जा यावर अवलंबून नसते. मनुष्याच्या प्राथमिक मानसिक गरजा काय असतात त्यावावत मनाशी खूणगाठ बांधायला हवी. त्या म्हणजेच (१) सौजन्य, सहानुभूती, सहकारीता, आणि समजूत यांवर आधारलेला प्रेमभाव (२) साहचर्य, कारण मनुष्यमात्राला दिर्घ काळ एकाकीपण सोसणे शक्य नसते. (३) सामाजिक जाणीव ज्यायोगे सभोवतालच्या लोकांकडून आपल्याला मान्यता आणि आधार मिळू शकतो. (४) वागण्याचे स्वातंत्र्य पण त्याच वरोवर कर्तव्याची जाणीव (५) स्वतःमधील निर्मितीच्या भावनेला वाव आणि वाट काढून देणे. (६) आयुष्याला काही दिशा आणि हेतू आहे यावर श्रद्धा. (७) सुखाचे वैवाहिक आणि कौटुंबिक जीवन. (८) शारीरिक व मानसिक व्यावहारिक सुरक्षा, अशा प्रकारे शारीरिक सामाजिक आणि आध्यात्मिक गरजांचा तोल राखल्यामुळे निरोगी व कार्यक्षम जीवन जगता येते.

**सात महापापे :** आधुनिक काळातील पापांची गणती करायची झाली तर ती अशी होईल आळशीपणा, मेदवृद्धी, धूम्रपान, अतिरेकी मद्यपान, झोपेवावत अनियमितता आणि खाण्यावर तावा नसणे. यापैकी वयाच गोष्टी जर एकत्र आल्या तर माणसाच्या आर्यु-मानावर हमखास विपरीत परिणाम घडवून आणतात.

यातील केवळ दोन गोष्टी एकत्र आल्या तरी केवळ एखाद्या दशकाच्या आत त्या माणसाच्या विनाशाचे कारण ठरू शकतात. कोणत्याही वावतीत अतिरेक हा वाईटच हे तर याआधी सांगून झालेच आहे.

**निष्कर्ष :** तसे पाहू गेल्यास आरोग्य हा विषय आहे कि त्यावावत ठिकठिकाणी भिन्नभिन्न मतप्रदर्शन केलेले आढळते. उलटसुलट उपाय सुचविलेले दिसतात. त्यामुळे माणसाच्या मनाचा गोंधळ वाढतो आणि त्याचा वैद्यक शास्त्रावरचा विश्वास उडू लागतो. उदाहरण द्यावे झाले तर पचनसंस्थेच्या विकारांच्या वावतीत पारंपारिक इलाज म्हणून लंघनाचा उल्लेख केला जातो. निसर्गो-पचारा मध्येसुद्धा फार तर फळांचा रस घ्यावा असे सांगितलेले असते. आधुनिक वैद्यकात मात्र पुरेशी जीवनसत्वे घेण्यावर भर दिलेला असतो. कारण त्यांच्या मते उपासमाराची अतिरेकी खाणे किंवा जंतुसंसर्ग अशी अनेक कारणे असू शकतात आणि कोणताही ठोकाताळा त्यांना मान्य नसतो. त्यामुळे प्रयोग करणे आणि सर्व शक्यता ध्यानात घेणे गरजेचे ठरते. त्याचप्रमाणे प्रत्येकाची शरीरप्रकृती वेगवेगळी असू शकते. त्यामुळे पूर्ण अभ्यास करून इलाज करणे हेच योग्य असते.

येथवर जे सारे सांगितले ते वरकरणी दिसायला अगदी सोपे आणि सामान्य माहितीच्या स्वरूपाच्या वाटण्याची शक्यता आहे. परंतु या साऱ्या गोष्टी नीटपणे समजावून घेतल्याशिवाय आणि त्यांचे योग्य प्रकारे पालन केल्याशिवाय आरोग्यप्राप्ती संभवतच नाही. अर्थात या पलिकडेदेखील इतर अनेक घटक असे असतात की त्यांचा मानवी आरोग्यावर निश्चितच परिणाम होत असतो. उदाहरणार्थ अनुवंशिकता, मूल जन्माला येताना अनेक गुणावगुण विकृती इत्यादी वरोवर घेऊन येतो आणि त्यांचे आकलन होणे व त्यावर तावा राखणे हे खरोखरच कठीण काम असते. त्यासाठीच वैद्यकशास्त्र निर्माण झाले आणि ते सर्वच प्रकारच्या परिस्थितीवर मात करण्याचा आणि माणसाचे जीवन अधिकाधिक सुखकर करण्याचा प्रयत्न करत असते. त्यातूनच आपल्याकडे ५० वर्षांपूर्वी केवळ ३२ वर्षांची आर्युमर्यादा होती ती आता ६० च्या वर गेली असून आपल्या जीवनमानातही खूपच सुधारणा घडून आली आहे.



आपले आरोग्य आपल्याच हातात असते आणि ते कमवावे लागते, त्यासाठी मेहनत घ्यावी लागते. डॉक्टर, सरकारी आरोग्य सेवा यावर अवलंबून राहून ते साधता येणार नाही. शहर आणि ग्रामीण भागातील लोकांनाही हे लागू पडते. गावचे आणि त्याजबरोबर गावकऱ्यांचे आरोग्य सुधारावयाचे असेल तर सर्व प्रथम आरोग्य कोणकोणत्या गोष्टींवर अवलंबून आहे याची माहिती करून घेणे आवश्यक आहे. आरोग्य हा चार खांबी तंबू आहे. ते खांब म्हणजे आनुवंशिकता, पोषण, परिसर व जीवनशैली. आनुवंशिकता आपल्या हातात नसते कारण आपण आपले आई-वडील निवडू शकत नाही. पण आई, वडील किंवा जवळचे नातेवाईक ह्यांना मधुमेहासारख्या आनुवंशिक रोगाची बाधा असेल तर त्यापासून होणारे दुष्परिणाम आपण टाळू शकतो. पोषण, परिसर व जीवन जगण्याची पध्दत ह्या गोष्टी समाजावर व इतर अनेक बाबींवर अवलंबून असतात. ह्या व्यापक परिस्थितीच्या कारणमुळे जेव्हा आपण ग्रामीण सुधारण्याच्या योजना आखतो, त्या सर्व योजना खेडेगावांची अंग आहेत असे समजणे व त्याप्रमाणे कार्यवाही करणे आवश्यक आहे.

### प्राथमिक गरज:

आरोग्याची काळजी घ्यायची असेल तर आपल्या मनात आरोग्याबद्दल असलेले अज्ञान दूर करणे आवश्यक आहे. सर्वसाधारणपणे, आपण किंवा जवळचे नातेवाईक तसेच मित्र आजारी पडले किंवा मोठी साथ येऊन लोक मृत्युमुखी पडले म्हणजे आरोग्याची आठवण येते. इतर वेळी आरोग्याबद्दल उदासीनता, बेफिकीरपणा, बेपर्वाई, इत्यादी दिसून येतात. तसेच आरोग्याची व रोगनिदान, बरे होण्यासाठी उपचार व औषधपाणी ह्या दोन गोष्टींबद्दल गल्लत केली जाते. आरोग्याबद्दल खेडेगावातल्या व गावकऱ्यांच्या गरजा ह्यांबद्दल विचारणा केली असता, सर्वसाधारणपणे डॉक्टर, दवारवाना, औषधे, नर्स इत्यादींची मागणी येते. हे सर्व अज्ञानाचे द्योतक आहे. हे सर्व बदलायचे असेल तर आरोग्य

म्हणजे काय? आरोग्याला घातक गोष्टी कोणत्या आहेत? आरोग्याचे संगोपन आणि रोगप्रतिबंधनाचे मार्ग कोणते? ह्यासारख्या प्रश्नांची उत्तरे जाणून घेतली पाहिजेत आणि त्याबरोबरच स्वालंबनाची प्रतिज्ञा घेतली पाहिजे.

### आरोग्यविषयक बाबींची कार्यवाही:

१. पर्यावरण व परिसर सुधारणा — ह्यामध्ये सर्व घरे, जमीन, इमारती, रस्ते, मोकळ्या जागा, शेते, बाजार, इत्यादी, अंतर्भूत आहेत. स्वच्छता व टापटीप ह्या सर्वत्र उत्कर्षाने दिसावयाचे दृष्टीने प्रयत्न होणे आवश्यक आहे. महत्त्वाच्या गोष्टी म्हणजे (अ) पाणीपुरवठा, (ब) कचऱ्याची व सांडपाण्याची विल्हेवाट, (क) मलमूत्राची विल्हेवाट, (ड) सार्वजनिक स्वच्छता, (इ) डांस, माश्या, उंदीर, मोकटा कुत्री व इतर जनावरांची प्रतिबंधक व्यवस्था, (फ) माळरान व इतर ठिकाणे, वनराई, (ज) घरांची देखरेख, (ल) रस्त्यांची देखरेख, (य) नदी, ओढे, नाले, ह्यांची देखरेख, इत्यादी बाबी.

निसर्ग हा नेहमी आरोग्यकारक असतो, पण माणूसच आपल्या गैरवागणुकीतून व बेपर्वाईतून घराचा व गावचा परिसर रवराब करतो, आरोग्याला व रोगराईला आमंत्रण देतो. आता कार्यवाहीकडे वळू.

२. पाणीपुरवठा — येथे फक्त पिण्याच्या पाण्याबद्दल काय करावयाचे हे आपण पाहणार आहोत. परंतु शेती, उद्योगधंदे इत्यादी गोष्टी कराव्या लागणाऱ्या पाण्याबद्दलचा विचारविनिमय व सोय करणे अवश्य आहे. पिण्याचे पाणी निर्जंतुकरण केलेले व इतर प्रदूषणांपासून मुक्त असेल तर ८० ते ८५ टक्के आजारपण कमी होते असा अनुभव आहे. त्यामुळे सुरक्षित पिण्याचे पाणी पुरविणे हा महत्त्वाचा आरोग्य संवर्धनाचा कार्यक्रम असला पाहिजे. प्रत्येक माणसामागे साधारणतः ५ लिटर पाणी पिण्यासाठी व स्वयंपाकासाठी लागते. शास्त्रोक्त पद्धतीने शुध्द



केलेले पाणी नळाद्वारे घरपोच पुरविणे हे सर्वात उत्तम. पण हे शक्य नसेल तर घरगुती पर्याय वापरून पाणी शुध्द करणे शक्य आहे. पाणी उकळणे व थंड झाल्यावर पिणे हा उत्तम उपाय आहे, पण तो त्रासदायक व खर्चिक आहे. त्यापेक्षा २-३ दिवसाचे शिळे पाणी वापरले तर त्यातले रोगदायक जंतू मरून गेलेले असतात. ह्यासाठी तीन मोठ्या कळश्या किंवा पिंपे पाण्यानी भरावीत. पहिल्या दिवशी पहिल्या पिंपातले, कळशीतील पाणी वापरावे. दुसऱ्या दिवशी दुसऱ्या कळशीतील पाणी वापरावे व पहिले भरून ठेवावे, तसेच तिसऱ्या दिवशी तिसऱ्या कळशीतील पाणी वापरावे व चौथ्या दिवशी पहिल्या पिंपातले पाणी वापरावे व ही साखळी चालू ठेवावी. तांब्याची कळशी/पिंप वापरणे उत्तम कारण तांब्यात जंतुनाशकता असते. हे शक्य नसेल तर तांब्याचा पातळ पत्रा मिळतो. ह्या पत्र्याची (२१सेमी X १०० सेमी) गुंडाळी करून प्रत्येक पिंपात ठेवता येईल. आठवड्यातून एकदा हा पत्रा धुऊन स्वच्छ करावा.

३. सार्वजनिक स्वच्छता — प्रत्येकाने ठरवले तर सार्वजनिक स्वच्छता ठेवता येणे शक्य आहे. आपण आपले घर व देवाचा गाभारा स्वच्छ ठेवतो त्याप्रमाणे सर्व परिसर स्वच्छ व टाकठीक ठेवणे शक्य आहे.

४. जीवनशैली — आपले आरोग्य हे बहुतांशी आपल्या जीवनशैलीवर म्हणजे आपली वागणूक, चालीरीती, विचार, संवयी, इत्यादी बाबींवर अवलंबित असते. आपण आपले दैनंदिन जीवन जगतो त्यात आपले आचरण, व आरोग्याची फार मोठी जवळीक असते. उदाहरण म्हणजे आपण जेव्हा जेव्हा विविध प्रकारच्या गोष्टींचा, साधनांचा वापर करतो तेव्हा तेव्हा आपणच कचरा व इतर निरुपयोगी वस्तू तयार करत असतो. जुन्या पध्दती व संस्काराप्रमाणे हातपाय धुतल्याशिवाय

घरात न येणे, जेवणाचे अगोदर आणि शौचाला जाऊन आल्यावर दोही हात स्वच्छ धुणे हे हल्ली कमीपणाचे समजतात. स्वच्छता व टापटीप याचा अभाव आढळतो. घराचा परिसर, रस्ते, मैदाने, बाजार, स्वच्छतागृहे, सर्वत्र घाणच घाण. कचऱ्याची व सांडपाण्याची योग्य विल्हेवाट न लावल्यामुळे होणारे डांस, माश्या, मोकाट कुत्रे रोग पसरवितात. सिंगापूर किंवा पाश्चात्य देशातले रस्ते आपल्या घरापेक्षाही स्वच्छ असतात. तेथे धूळपण उडत नाही. त्यांच्या कचरापेट्या, मुताऱ्या, संडास येथून जाताना घाण वास येत नाही. त्यावर पाट्या असल्यामुळे तेथे मुतारी आहे असे समजते. आपल्या देशात मात्र अशा पाट्यांची गरज अजिबात नसते. फार लांबून सुध्दा आपण मुतारी, संडास व कचरा पेट्या ओळखू शकतो. आपल्याला आरोग्य मिळवायचे असेल तर हे सर्व आपण टाळले पाहिजे प्रत्येकाने स्वतः स्वच्छतेचा निर्धार करणे आवश्यक आहे आणि स्वच्छता पाळणे हे फक्त एकट्या दुकट्याचे काम नसल्यामुळे समाजातील प्रत्येक घटकानेच याचा विचार केला पाहिजे आणि विचार कृतीत आणला पाहिजे. याशिवाय आपले आणि शहराचे, गावाचे आरोग्य आपण राखू शकणार नाही हे सत्य आहे

### सारांश:

थोडक्यात म्हणजे आपले व आपल्या गावाचे आरोग्य आपल्याच हातात आहे. आरोग्य हे फक्त डॉक्टर मंडळी, औषधे आणि टॉनिक देऊ शकणार नाही. आपले घर, परिसर वगैरे स्वच्छ व प्रदूषणमुक्त ठेवले पाहिजे. आपल्या जेवणातून आपले पोषण होते का नाही ह्या कडे लक्ष पुरविणे आणि महत्त्वाचे म्हणजे आपल्या जीवनशैलीचे स्वतःच परीक्षण करून आपले आचरण वागणूक व विचार हे आरोग्यदायी कसे होतील हे ठरवून त्याप्रमाणे वागणे आवश्यक आहे.



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## आरोग्य संवर्धन

आरोग्य संवर्धन हा भाषणाचा विषय नसून आचरणाची गोष्ट आहे. आपले शरीर जसे अद्भुत आहे तसेच अमूल्य व अतुल्य आहे. ही निर्सर्गाने दिलेली फार मोठी देणगी आहे. शरीर आणि मन हे स्वयंचलित व आत्मनियंत्रित आहेत. सुरक्षीतपणे आणि समाधानाने जीवन जगण्यासाठी आपल्या शरीरात डोळ्यांसारखी इंद्रिय व पचन संस्थेसारख्या अनेक रचना आहेत. हयांना कार्यक्षम ठेवण्यासाठी हजारो प्रकारच्या पण एकमेकावर अवलंबून असणाऱ्या क्लिष्ट प्रक्रिया सतत चालू असतात. हया सर्व प्रक्रिया समतोल राखण्याची व नियमित करण्याची अद्भुत व्यवस्था निसर्गाने केलेली आहे. तसेच आंतरबाह्य धोक्यांपासून संरक्षक व प्रतिबंधक यंत्रणा पण जागरूक असते.

वैयक्तिक तसेच कौटुंबिक विकासाकरता आरोग्य संपादन व संरक्षण हे महत्त्वाचे साधन आहे. मानसिक समाधानाशिवाय आपण सुखाचा उपभोग घेऊ शकत नाही. कामधंदा नीट होत नाही. मन व चित्त लागत नाही मग विकासाचा प्रश्नच उद्भवत नाही.

सार्वजनिक आरोग्य वैयक्तिक आणि सामुहिक जीवनाशी निगडीत आहे. गेल्या ६० वर्षांत वैद्यक शास्त्रात झालेल्या प्रगतीमुळे संसर्गजन्य रोगांना आळा घालण्यात आणि काही रोगांचे उच्चाटन करण्यात यश आले आहे. राहणीमान सुधारत आहे. पण त्याचबरोबर हृदरोग, रक्तदाब, कर्करोग, मधुमेह, सांधेदुखी इत्यादी रोगांशी मनुष्याला झगडावे लागत आहे.

रोग टाळायचे असतील आणि आरोग्याची काळजी घ्यायची असेल तर आपल्या मनात आरोग्याबद्दल असलेले अज्ञान दूर करणे आवश्यक आहे. सर्वसाधारणपणे आरोग्याकडे लक्ष जाते ते केवळ आजारीपणातच. आपण स्वतः, नातेवाईक व मित्र आजारी पडले किंवा साथ येऊन मृत्यु

झाले म्हणजे आपल्याला आरोग्याची आठवण येते. इतर वेळी आरोग्याबद्दल उदासीनता, बेफिकीरपणा व बेपर्वाई दिसून येतात. ही खेदाची गोष्ट आहे. आरोग्य संवर्धन, रोगनिदान, उपचार व औषधपाणी हया गोष्टींचा खरा अर्थ आणि फरक बहुतेक लोकांना समजलेला नसतो. आरोग्य सुधारण्यासाठी डॉक्टर नर्स, दवाखाना, औषधे, इत्यादींची मागणी केली जाते. हे सर्व अज्ञानाचे द्योतक आहे. हे बदलायचे असेल तर आरोग्य म्हणजे काय? आरोग्याला घातक गोष्टी कोणत्या आहेत? आरोग्यसंगोपन आणि रोगप्रतिबंधाचे मार्ग कोणते? हया प्रश्नांची उत्तरे जाणून घेतली पाहिजेत आणि स्वालंबनाची प्रतिज्ञा घेतली पाहिजे.

आपले आरोग्य आपल्याच हातात असते आणि ते कमवावे लागते, त्यासाठी मेहनत घ्यावी लागते. डॉक्टर, औषधे अथवा आरोग्यसेवा यावर आरोग्य अवलंबून नाही. आरोग्य सुधारावयाचे असेल तर सर्व प्रथम आरोग्य कोणत्या गोष्टीवर अवलंबून आहे याची माहिती करून घेणे आवश्यक आहे. आरोग्य हा चार खांबी तंबू आहे. ते खांब म्हणजे अनुवंशिकता, परिसर, पोषण व जीवनशैली. जीवन जगण्याची पध्दत, पोषण व परिसर हया गोष्टी समाज वगैरे बाबींवर पण अवलंबून असतात. सामाजिक आरोग्य हा वेगळा विषय आहे. त्याचा हया भाषणात विस्तार करणार नाही.

अनुवंशिकता आपल्या हातात नसते; आपण आपले आई वडील निवडू शकत नाही. अनेकांजवळ आरोग्याचा वंशपरंपरागत आलेला ठेवा असतो पण त्याचेवर सर्वस्वी विसंबून राहणे चूक आहे. आई, वडील किंवा जवळचे नातेवाईक हयांना मधुमेहासारख्या अनुवंशिक रोगाची बाधा असेल तर त्यापासून होणारे दुष्परिणाम आपण टाळू शकतो.



पर्यावरण व परिसर: ह्यामध्ये आपण स्वतः सोडून राहीलेले सर्वकही अंतर्भूत आहे. त्यात आपले घर, वस्ती, गांव व देश महत्वाचे. निसर्ग हा बहुधा चांगला असतो, पण माणूसच आपल्या गैरवागणुकीतून व बेपर्वाईतून घराचा व गावाचा परिसर खराब करतो; अनारोग्य व रोगराईला आमंत्रण देतो. आपण जेव्हा विविध प्रकारच्या गोष्टींचा, साधनांचा वापर करतो तेव्हा आपणच कचरा व निरूपयोगी वस्तू तयार करत असतो. स्वच्छता आणि टापटीपीची संवय सर्वांनी लावणे आवश्यक आहे. महत्वाच्या गोष्टी म्हणजे (अ) शुध्द पाणीपुरवठा, (ब) कचऱ्याची व सांडपाण्याची विल्हेवाट, (क) मलमूत्राची विल्हेवाट, (ड) सार्वजनिक स्वच्छता, (इ) डांस, माशा, उंदीर, कुत्री व पाळीव जनावरांची देखभाल, (फ) वनराई, माळरान व इतर ठिकाणे जोपासणे, (ज) घरांची देखरेख, (ल) रस्त्याची देखभाल, (य) नदी, ओढे, नाले, ह्यांचे व्यवस्थापन इत्यादी.

पिण्याचे पाणी निर्जंतुकरण केलेले व प्रदुषणापासून मुक्त असेल तर ८० ते ८५ टक्के आजार कमी होतात. आरोग्य संवर्धनासाठी शास्त्रोक्त पद्धतीने शुध्द केलेले पाणी नळाद्वारे घरपोच पुरविणे हे सर्वात उत्तम. हे शक्य नसेल तर घरगुती पर्याय वापरून पाणी शुध्द करणे शक्य आहे. पाणी उकळणे व थंड झाल्यावर पिणे हा उत्तम उपाय पण खर्चिक आहे. त्यापेक्षा २-३ दिवसापूर्वी भरलेले पाणी वापरले तर त्यातले रोगदायक जंतू मेलेले असतात.

स्वच्छता व टापटीप याचा सर्वत्र अभाव आढळतो. परिसर, रस्ते, मैदाने, बाजार, स्वच्छतागृहे, सर्वत्र घाणच घाण. तसेच डांस, माशा, कुत्री व मोकाट जनावरे मुबलक. सिंगापूर किंवा पाश्चात्य देशातले रस्ते आपल्या घरापेक्षाही स्वच्छ असतात. आपल्या देशात मुतारी, संडास व कचरा पेट्यांना पाट्यांची गरज नसते. आपण त्या घाण वासावरून लांबून सुध्दा ओळखू शकतो. आपल्याला आरोग्य मिळवायचे असेल तर हे सर्व टाळले पाहिजे. प्रत्येकाने स्वतः व समाजातील प्रत्येक घटकाने स्वच्छतेचा निर्धार करणे आवश्यक

आहे. स्वच्छता पाळणे हे कृतीत आणले पाहिजे. समाजकंटकपणा चालणार नाही.

पोषण: आपले अन्न व शरीरातील चयापचयाच्या प्रक्रिया त्यावर पोषण अवलंबून असते. आपापले पारंपारिक जेवण व अन्नपदार्थ खाणे हा योग्य पोषणाचा सर्वात सोपा उपाय आहे कारण शरीरातील चयापचयाच्या वंशपरंपरागत प्रक्रिया आपल्याला आयत्या उपलब्ध असतात. जेवणात व अन्नपदार्थात जेवढी विविधता असेल त्याप्रमाणे आहार पौष्टीक होतो. पालेभाज्या व फळे ह्यांचा जास्त वापर आणि सर्व धान्ये, डाळी, कडधान्ये, भाज्या इत्यादींचा आलपालटून वापर असेल तर पोषण सुधारते. एकाच प्रकारचे धान्य, डाळ, वगैरेचा सातत्याने वापर आणि फक्त बटाटे, कोबी वगैरे भाज्या खाणे इष्ट नाही. चांगली संवय म्हणजे सर्व प्रकारचे अन्न माफक प्रमाणात खाणे.

मिताहार राखावा. उष्मांक कमी केल्याने वजन आटोक्यात राहते. लड्डूपणामुळे कितीतरी विकार होऊ शकतात. स्थूलपणा व सुस्तपणा जरूरीपेक्षा जास्त अन्न आणि आळशीपणा यातून होतात. पचनसंस्थेच्या दुखण्यापासून थेट रक्तदाब, हृदयविकार, मधुमेह, कर्करोग या सर्वांना भरमसाठ खाण्यापिण्यामुळे निमंत्रण दिल्यासारखे होते. “भुकेहुन दोन घास कमीच खाणे” आणि “इष्ट वजनापेक्षा ५ ते १० टक्के वजन कमीच ठेवणे” हे दोन महामंत्र फार उपयोगी आहेत.

“टॉनिक” व फैलावत असलेली आधुनिक प्रक्रिया केलेली “पौष्टीक अन्ने” व “फास्ट फूड” ही सामाजिक फसवणूक आहे. ह्यात पैसा आकारण जातोच व आरोग्य पदरात पडत नाही. कंपन्या व दुकानदार मात्र गबर होतात. गैरसमजुती, अफवा, जाहिरातबाजी, इत्यादी आमिषे टाळा.

जीवनशैली: आपले आरोग्य हे बहुतांशी आपल्या जीवनशैलीवर म्हणजे आपली वागणूक, चालीरीती, विचार, संवयी, इत्यादी बाबींवर अवलंबून असते. आपले दैनंदिन जीवन आणि आचरण ह्यांची आरोग्याशी फार मोठी जवळीक



असते. आपली दिनचर्या, राहणी, कामधंदा, संवयी, व्यायाम, जीवनाकडे पाहण्याची दृष्टी, वगैरे अनेक गोष्टीत आरोग्य सामावलेले असते. किंबहुना जीवन व आरोग्य ह्यांची फारकत करता येणार नाही. हे दोन्ही परस्परांवर अवलंबून असतात. आपल्या अनेक परंपरा व रूढींचा अनादर करून चालणार नाही. कालानुसार त्यात योग्य फरक करणे हे मात्र शास्त्रीयदृष्ट्या योग्यच आहे.

निरोगी आयुष्यासाठी दिनचर्या कशी असावी हे आयुर्वेदामध्ये सांगितले आहे. सर्वच माणसांना एकाच प्रकारच्या दिनचर्येचा अवलंब करणे शक्य नसते. व्यापारी, व्यावसायिक, शेतकरी, कारागीर, कलावंत, विद्यार्थी, खेळाडू आणि कामकरी वर्ग यांच्या जगण्याच्या पद्धती वेगवेगळ्या असणारच. तथापि आपल्या गरजाचे भान राखून निरोगी आयुष्य जगण्यासाठी दिनचर्ये मध्ये किमान कोणत्या गोष्टीची आवश्यकता आहे हे ठरविणे शक्य आहे.

माणसागणिक दिनचर्या वेगवेगळी असू शकते. इतकेच नव्हे तर एकच माणूस वेगवेगळ्या वेळी आणि परिस्थितीत निरनिराळ्या तऱ्हेने वागत व जगत असतो. तेव्हा त्यात लवचिकपणा राखणे जरूर असते. त्या दृष्टीने निरोगी दिनचर्या कशी आखावी आणि अमलात आणावी याचे काही ठोकताळे ठरविणे सोयीचे होईल. त्यामध्ये पुढील बाबींचा अंतर्भाव होतो.

१. नियमितपणा: अन्नग्रहण, शरीरशुद्धी, निद्रा, विश्रांती, काम या सान्यांमध्ये वक्तशीरपणा ठेवला तर आपल्या सर्व शरीरक्रिया व नियमन ह्यांचा खूपच फायदा होतो आणि यांचे चक्र व्यवस्थित सांभाळले जाते.

२. संयम: निरोगी आयुष्यासाठी संयम म्हणजे सोनेरी नियम आहे. अतिरेकी किंवा मर्यादा सोडून वागणे हानिकारक ठरू शकते. आधुनिक पापांची गणती करायची झाली तर ते आळशीपणा, मेदवृद्धी, धूम्रपान, अतिरेकी मद्यपान,

झोपेबाबत अनियमितता आणि खाण्यावर ताबा नसणे.

३. वैयक्तिक स्वच्छता: स्वतःच्या शरीराची निगा आणि स्वच्छता राखणे हा निरोगी वर्तनाचा पाया गणला जातो. जीवनपद्धतीवर त्याचा विलक्षण प्रभाव पडतो. जुन्या पद्धती व संस्काराप्रमाणे हातपाय धुतल्याशिवाय घरात न येणे, जेवणाचे अगोदर आणि शौचाला जाऊन आल्यावर हात स्वच्छ धुणे हे रोगप्रतिबंधक उपाय खात्रीचे आहेत.

४. हालचाल आणि व्यायाम: पुरेशी हालचाल न झाल्यास शरीराची क्षमता आणि चैतन्य नष्ट होऊ लागते. बैठा व्यवसाय आणि निष्क्रीय जीवनपद्धती यामुळे आरोग्याला इजा पोचू शकते. योग्य प्रकारचे व्यायाम नियमित आणि पद्धतशीरपणे करणे हे अत्यावश्यक आहे. वयानुसार ३० ते ४० मिनिटांचा व्यायाम व योगासने आठवड्यातून चार ते सहा वेळा करणे इष्ट ठरेल. आधुनिक जीवनात जलद चालण्यामुळे होणारे फायदे भरपूर आहेत. साधारणपणे ३ ते ४ किलोमीटरची जलद चाल नियमित आणि सतत करणे आरोग्यदायी आहे.

५. स्वावलंबन: स्वतःची देखरेख व काम स्वतः करणे हे निरोगी राहण्यासाठी उपयोगी आहे.

६. आत्मविश्वास आणि सद्विचार: मनाची काळजी घेणे हे निरोगी व सुखी जीवनासाठी महत्त्वाचे आहे. तर्कशुद्ध विचार आणि कोणत्याही समस्येसाठी पर्यायी मार्गाचा शोध घेण्यामुळे आपले वर्तन चोख, परिणामकारक आणि व्यवहारिक राखता येते. आत्मविश्वास आणि रास्त विचारसरणीमुळे होणारे फायदे भरपूर आहेत. काळजी करण्यापेक्षा काळजी घ्यावी. भोवतालच्या सतत बदलणाऱ्या परिस्थितीविषयी कुतूहल जागृत ठेवणे मनासाठी चांगले आहे. आशावादी राहण्यामुळे मनाला बळकटी प्राप्त होते.

७. व्यवसाय: चारितार्थाचे साधन असेल तर जीवनाला योग्य दिशा लाभते. नोकरी किंवा कामधंदा आवडीने व मनःपूर्वक केला पाहिजे.



केवळ पाटया टाकणे हितकरी नसते. आवड, निवड, शिक्षण, कौटुंबिक संबंध, आर्थिक संधी तसेच उद्योगक्षमता वगैरे योग्य असल्यास व्यवसाय आनंददायी होतो. ताण, चिंता किंवा वैफल्य निर्माण होत नाहीत.

८. ताणतणाव: एखाद्या कठीण परिस्थितीशी सामना करता न येणे किंवा निर्माण झालेल्या समस्यांना उत्तर न सापडणे यातून तणाव निर्माण होतात. पुष्कळदा असुरक्षितपणाच्या भावनेतून ताण निर्माण झालेला असतो. अशा वेळी मन गुंतविण्यासाठी माणूस व्यसनाकडे वळतो. परंतु त्यामुळे ताण कधीच दूर होत नाही.

आपली मर्यादा ओळखणे आणि स्विकारणे हा मानसिक संतुलनाचा उत्तम उपाय आहे. भोवतालच्या परिस्थितीशी आणि माणसांशी जुळवून घेणे आणि दैनंदिन कटकटीपासून क्षणभर तरी दूर होईल अशी एखादी आवड निर्माण करणे हे महत्त्वाचे आहे. चांगले छंद, संवयी, खेळ, व्यायाम वगैरेमध्ये फावला वेळ कारणी लावता येतो. आयुष्य आहे तसे स्विकारले म्हणजे बरेच प्रश्न सुटू शकतात. माणसाने आपल्या मर्यादा बाळगून महत्वाकांक्षा राखणे हे सूझपणाचे ठरते.

आरोग्याबाबत ठिकठिकाणी भिन्न मतप्रदर्शन केलेले आढळते. उलटसुलट उपाय सुचविलेले दिसतात. त्यामुळे मनाचा गोंधळ वाढतो आणि वैद्यक शास्त्रावराचा विश्वास उडू लागतो. उदाहरण द्यायचे झाले तर पचनसंस्थेच्या विकारांच्या बाबतीत पारंपारिक इलाज म्हणून लंघनाचा उल्लेख केला जातो. निसर्गोपचारामध्ये फळांचा रस घ्यावा असे

सांगतात. आधुनिक वैद्यकाच्या मते कुपोषण, अतिरेकी खाणे किंवा जंतुसंसर्ग अशी अनेक कारणे असू शकतात आणि कोणताही ठोकताळा त्यांना मान्य नसतो. त्यामुळे सर्व शक्यता ध्यानात घेणे गरजेचे ठरते. प्रत्येकाची शरीरप्रकृती वेगवेगळी असते त्यामुळे पूर्ण अभ्यास करून इलाज करणे हेच योग्य असते.

#### सारांश:

अखेर माणसाचे सूख किंवा समाधान हे त्याच्या जवळील पैसा, मालमत्ता, किंवा सामाजिक दर्जा यावर अवलंबून नसते. सर्वाना पाहीजे असते सौजन्य, सहानुभूती, प्रेमभाव, साहचर्य, मान्यता, वागण्याचे स्वातंत्र्य, निर्मितीच्या भावनेला वाव, श्रद्धा, सुखाचे वैवाहिक आणि कौटुंबिक जीवन, शारीरिक व मानसिक सुरक्षा. सामाजिक आणि आध्यात्मिक गरजांचा तोल राखल्यामुळे निरोगी व कार्यक्षम जीवन जगता येते. आपल्या मनाचा आपल्या शरीरावर व वागणूकीवर जबरदस्त पगडा असतो. मन बळकट असेल तर गंभीर आजार सुध्दा बरे होतात. मन दुबळे असेल तर किरकोळ दुखणी सुध्दा गंभीर होतात.

थोडक्यात म्हणजे आपले आरोग्य आपल्याच हातात आहे. डॉक्टर, औषधे आणि टॉनिक आरोग्य देऊ शकणार नाहीत. घर व परिसर स्वच्छ व प्रदुषणमुक्त ठेवले पाहिजे. आपल्या जेवणातून आपले पोषण होते का नाही ह्याकडे लक्ष पुरविणे आणि आपल्या जीवनशैलीचे स्वतःच परिक्षण करून आपले आचरण, वागणूक व विचार हे आरोग्यदायी कसे होतील हे ठरवून त्याप्रमाणे वागणे आवश्यक आहे.

पहिले जागतिक चित्पावन महासंमेलन, २३ डिसेंबर २००७, पुणे, महाराष्ट्र चित्पावन संघातर्फे केलेल्या सत्कारावेळी भाषण. आपली आहे प्रगतीची वाट्याल, वर्ष ८, अंक १, १५ मार्च २००८: पान ७-१०.



## १७ देवधर मंडळाच्या पुण्याच्या वार्षिक सभेतील भाषण

देवधर मंडळाच्या कार्यकारिणीचे सन्मान सभासद आणि समस्त देवधर ढमढरे व दिक्षित वंधुभगिनींचा मी सुमन ह्या सत्कार समारांभावद्दल अत्यंत आभारी आहोत .

खरे म्हणजे कोणीच मोठा किंवा लहान असत नाही . सर्वजण आपापल्यापरी प्रमाणे आपले कार्यक्षेत्र व कामधंदा निवडत असतात . अपरिहार्य परिस्थिती किंवा योग्य संधी न मिळाल्यामुळे काही जणांना हे शक्य होत नाही . पण नवीन मार्ग नघतात . कोणही स्वतः मोठा नसतो त्याला समाज मोठा करतो समजतो . काही व्यक्ती स्वतःला मोठा समजतात . हे योग्य अथवा अयोग्य हा वादाचा मुद्दा होऊ शकतो . परंतु स्वतःला लहान समजणे, कमी लेखणे हा मात्र एक दोष उणवि आहे असे माझे मत आहे . समाज काही व्यक्तींना त्यांची खुर्ची, पद किंवा संपत्तीमुळे मोठे समजतात . हा समज अनेकदा चुकीचा ठरतो . हे क्षणभंगूर मोठेपण जसे येते तसेच संपते .

मी वैद्यकीय महाविद्यालयात गेल्यानंतर शस्त्रविद्येत प्रवीण होऊन काम करण्याचे ठरविले होते . त्याप्रमाणे एम्.एस्.(शस्त्रविद्या) ची पदवीसुद्धा मिळवली . परंतु मनात दुसरा आलेला विचार, मोठी संधी, व योग्य सल्ला ह्यामुळे मी, शस्त्रविद्या व कदाचित बराच पैसा सोडून, सार्वजनिक आरोग्य वैद्यकाकडे जाण्याचे निश्चित केले . त्याकरीता लागणारे उच्च शिक्षण पुणे मुंबई व अमेरिकेत घेतले . काही मान्यवर व्यक्तीकडून वरेच काही बहुमोल धडे घेतले .

हा बदललेला विचार व कार्यक्षेत्र आता फार योग्य वाटते . कारण काही हजारो रोगी, त्यांचे कुटुंबीय, आप्त व मित्रमंडळी ह्यांचा दुवा आणि आशीर्वाद ह्यांचे बदली लाखो करोडो लोकांचे विशेषतः गरिवांचे व राष्ट्राचे आरोग्य संपादन, सुविधा व संवर्धनाचे कार्यात, मला फार मोठी संधी उपलब्ध झाली . माला जो सक्रीय हातभार

लावता आला ह्यातच मला मोठे समाधान आहे . काही जण म्हणतात मी खूप कमावले असते पण मी काही गमावले नक्कीच नाही . एका रोग्याचे ऑपरेशन करणे सोपे असते परंतु समाजाचे ऑपरेशन फार अवघड असते . विशेषतः हे काम कधीच संपणारे नसते . अडचणी फार असतात . समस्या मोठ्या असतात . अनेक जण अडचणींची सवव करून स्वस्थ वसतात आणि सार्वजनिक कामात हा मोठा अडसर होतो . अशी आव्हाने अनेक असतात . पण त्यातच दडलेल्या असतात अनेक संधी व त्या सोडविण्यात असतो कामाचा आनंद . दम लागत नाही, उलट ज्ञान व वळ वाढते . जेव्हा राष्ट्रीय व आंतरराष्ट्रीय पातळीवर तुमचे नवे विचार, सूचना व कार्यक्रम मान्य होतात तेव्हाचा श्रमपरिहार अवर्णनीय असतो . आजकालचे शिक्षण हे परीक्षा पास होऊन पदवी व नोकरी काम ह्यांचेसाठी असते . परंतु खरे शिक्षण म्हणजे ज्ञान, कौशल्य आणि कार्यक्षमता कमाविण्यासाठीच असते . आपणास असलेले ज्ञान, कौशल्य आणि कार्यक्षमता ह्या गोष्टी म्हणजे दागदागिने नव्हेत तर इतरांना वाटण्याकरिता, देण्यासाठी असलेला ठेवा आहे, न संपणारा खजिना आहे . ह्या साधनांचा योग्य उपयोग करून स्वतःला, कुटुंबियांना, मित्रमंडळींना व समाजाला प्रगती साध्य करून दिली गेली तरच शिक्षणाचे साध्य पुरे होईल असे मला वाटते . ज्ञान दिल्याने वाढते, त्याला तेज येते . संपत्ती आपल्याला आपल्या वरोवर घेऊन जाता येत नाही . पण ज्ञान आपल्या वरोवर समाप्त होऊ शकते . तेव्हा आपले ज्ञान पुढच्या पिढ्यांचे साठी मागे ठेवण्यासाठी, इतरांना ते देऊन टाकणे हे सर्वोच्च कर्तव्य आहे .

माझी वृत्ती वोलण्याची नाही, कामाकडे जरूर आहे . आपण लोकांचे जरूर ऐकावे . त्याची अत्यंत गरज आहे . स्वतः शिकण्यासाठी त्याचे महत्व फार मोठे आहे . परंतु आपण सारासार विचार करून व तारतम्याने निर्णय घेणे आवश्यक आहे . जनाचे ऐकावे पण मनाचे करावे हेच योग्य .



## १८

## आहार — समजुती, गैरसमजुती

**निसर्ग:** कुठलाही जीव म्हटला की त्याला जगण्यासाठी अन्नाची आवश्यकता असते. सहाजिकच जीवाची उत्क्रांती होताना अन्नाचा स्त्रोत व प्रक्रिया या जीवाच्या जनुकांवर उतरल्या. वनस्पतींना खाद्य अकार्बनी पदार्थातून मिळते तर प्राण्यांना खाद्य म्हणून कार्बनी पदार्थ लागतात. त्यातून त्यांना उर्जा मिळते व वाढ होते. शाकाहारी प्राणी गवतावर तर मांसाहारी इतर प्राण्यांवर आवलंबून असतात. पिल्लांना खाण्याचे शिक्षण देण्याचे काम त्यांच्या मातेकडे असते. मानव याला अपवाद ठरत नाही. माणूस प्राण्यांसारखं गवत खाऊ शकत नाही, परंतु धान्ये, फळे व भाज्या खातो. तसे मांसही खातो. तसं पाहिलं तर माणसाचे पृथ्वीतलावर अस्तित्व १५-२० लाख वर्षे तरी आहे. विषुववृत्तापासून ध्रुवापर्यंत निरनिराळ्या वातावरणात, सृष्टीत त्याचा वावर झाला आहे. या दीर्घ कालावधीत आदिमानवाने निसर्गाचा शोध घेतला तसाच त्यापासून फायदाही उठवला. उपजत प्रवृत्तीमुळे अन्न, आहार व पौष्टिक घटक यांचा समन्वय त्याला समजला, बुद्धिमत्ता, कल्पकता, प्रयोगशीलता व चोखंदळपणा यांच्या जोरावर माणसाने योग्य अन्न व आहार निवडला. त्या त्या भागात मिळणारे स्थानिक अन्न त्याने निवडले व वापरले. त्यामुळे त्याच्या लक्षात आले की एकच विशिष्ट अन्न त्याला पुरे पडणार नाही. त्यांनी निरनिराळे अन्नपदार्थ योग्य प्रमाणात मिसळले व आहार निर्माण झाले. अशा तऱ्हेने आदिमानवाने स्वतःला आवश्यक व हितकारक, अन्नाचा शोध लावला. वनस्पती व प्राणी यांच्यातून अन्नसाखळी तयार झाली.

माणूस हा पर्यावरणाचा एक घटक आहे. त्याच्या शरीरात लाखो जीवजंतू राहतात. अमेरिकेतील नॅशनल इन्स्टिट्यूट ऑफ हेल्थ यांच्या 'हयुमन मायक्रोबायोम प्रॉजेक्ट' या अभ्यासात असे आढळून आले की मानवी शरीरात एकूण १८००० ते २०००० जनुक असतात तर सूक्ष्मजीवांचे ३० लाखांहून अधिक असतात. आपल्या शरीराची जनुकीय रचना सभोवतालच्या वातावरणाशी प्रक्रिया करत

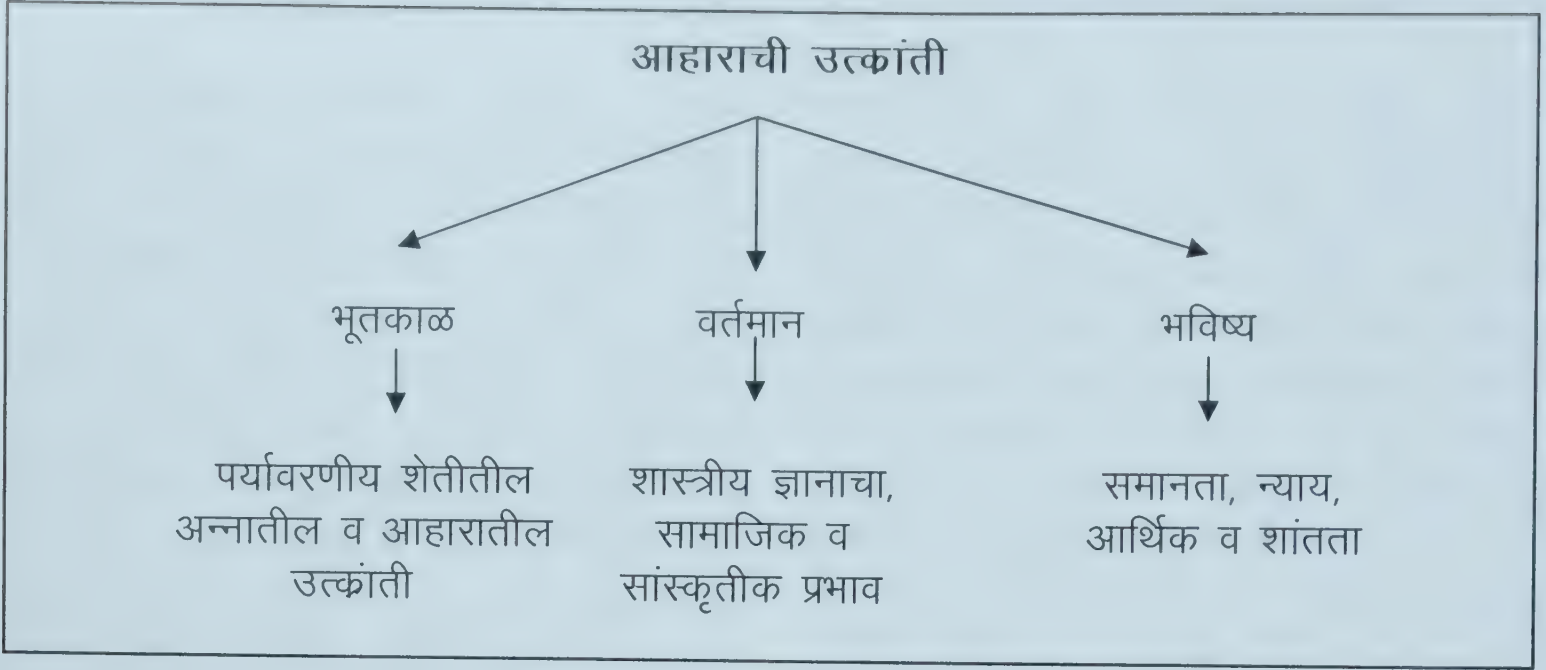
तडजोड करते. अशारीतीने इंद्रियविज्ञान व चयापचयाचे अनुकूलन झाले. त्यामुळे स्थानिक अन्नाचे पचन, शोषण व शरीरात जिरणे शक्य झाले. त्यासाठी चयापचयाचे निरनिराळे पयार्य कार्यरत झाले. उदा. उत्तर ध्रुवावर राहणारे एस्किमो 'ब' जीवनसत्वे स्वतःच्याच आतड्यातील जंतूंपासून निर्माण करू शकतात तर उष्णकटिबंधातील लोकांना 'ब' जीवनसत्वे पालेभाज्यांपासून मिळतात.

काही प्राणी शीत निश्क्रियतेमुळे (Hibernation) कडाक्याच्या थंडीत तग धरू शकतात. प्राचीन काळी तपस्वी अन्नावाचून वर्षानुवर्षे तपश्चर्या करत असत. त्यांना ही शीत निष्क्रियता जमली असेल.

**परंपरागत ज्ञानदृष्टि:** माणसाचे अन्न व आहार सामाजिक संस्कृती व भौगोलिक परिस्थितीनुसार बदलत जाणे सहाजिकच होते. सभोवतालच्या परिस्थितीशी जुळवून घेण्यामुळे माणूस पृथ्वीतलावर शेती सुरू होण्याअगोदरही जगू शकला. परिणामी आज माणसाला असंख्य प्रकारचे पदार्थ आहारासाठी मिळाले. एवढेच नव्हे तर न्याहारी, दुपारचे जेवण, संध्याकाळचा उपाहार व रात्रीचे जेवण यासाठी निरनिराळे पदार्थ तयार झाले. त्याचप्रमाणे उत्सवासाठी मेजवानीचे असंख्य पदार्थ पाककलानैपुण्यामुळे पानात वाढले गेले. तपासून पाहिले तर पारंपरिक भारतीय आहार किती शास्त्रोक्त व आश्चर्यकारक आहे हे पटते.

आपल्या नित्याच्या आहारातील धान्ये, डाळी, कडधान्ये व त्यापासून निर्माण होणारे अगणित पदार्थ आपली खाद्यसंस्कृती किती उच्च दर्जाची आहे हे दर्शवितात. आहारातील मसाल्यांचा वापर आश्चर्यकारक आहे. या मसाल्यांचा वैद्यकीय फायदा, प्रतिबंधक उपाय याचा सखोल अभ्यास झाला असला पाहिजे. आपली पाककला जशी वाढत गेली तसा मसाल्यांचा वापरही व्यवस्थितरीत्या वाढला. या सर्वांचा विचार करता आजच्या आहारतज्ज्ञांना हात टेकावे लागतील.





आहाराच्या पध्दती, प्रथा आणि तत्संबंधी रीतिरिवाज कालौघात टिकून राहिलेत. क्षार, तंतू, ॲण्टीॲक्सिडण्डस् व फ्लेव्होनाईडस् यांचा विचार हल्ली होऊ लागला आहे. पण आपल्या आहारावर ओझरता दृष्टिक्षेप टाकला तरी आपल्या लक्षात येईल की या सर्व गोष्टी आपल्या आहारात वर्षानुवर्षे आहेत. पाच दशकांपूर्वी श्री. सूखात्मे यांनी प्रथिन कमतरतेबद्दल भ्रमनिरास केला होता. आपला पारंपरिक आहार हाच संरक्षक आहार आहे.

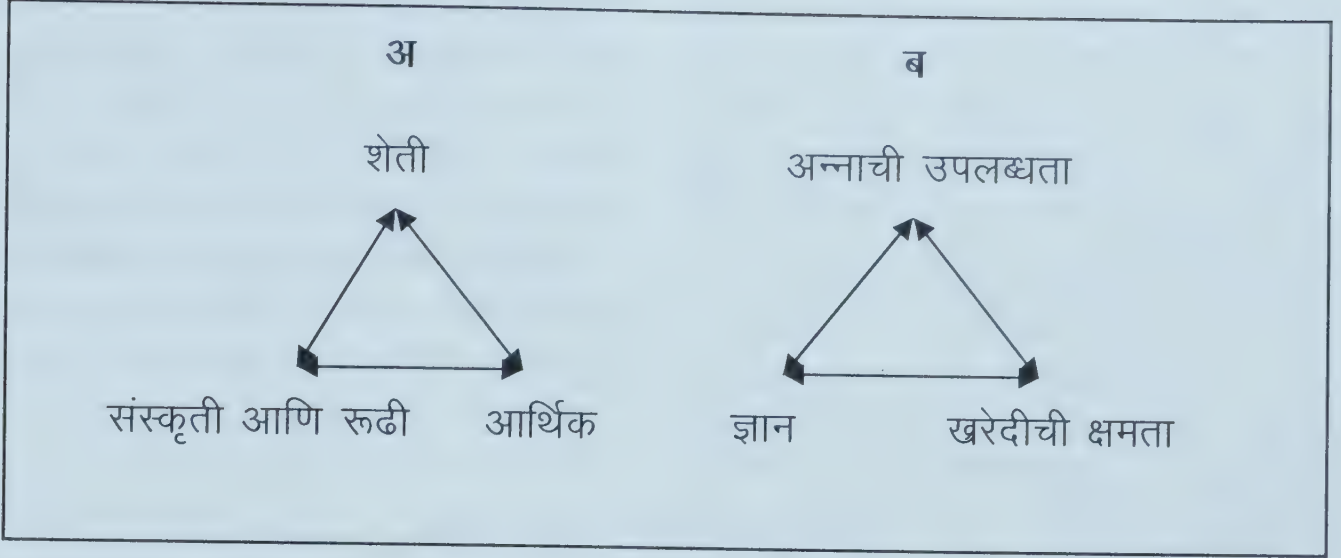
**भ्रामक कल्पना:** अन्नाविषयी निर्माण झालेल्या गोंधळातून आहारविषयी खूप भ्रामक कल्पना निर्माण झाल्या आहेत. काय खावे आणि काय खाऊ नये? शरीरस्वास्थ्यासाठी कोणते अन्न चांगले वा हानिकारक हा प्रश्न पडतो. एखाद्याला हितकारक ठरणारे अन्न अधिहर्षतेमुळे (ॲलर्जी) दुसऱ्याला विषप्रद ठरेल. रीडर्स डायजेस्टने 'फूडस् दॅट हार्म ॲंड फूड्स दॅट हील' असे एक पुस्तक प्रसिध्द केले. त्यात एक टीप दिली 'आपल्या विशिष्ट आरोग्य प्रश्नांसाठी आपल्या डॉक्टरांचा सल्ला घ्यावा.' आहारविषयी भ्रामक कल्पना खूपच आहेत. उदा. अतिगोड खाण्यामुळे मधुमेह होतो! अशा आभासी, उलटसुलट कल्पना खूप आहेत. आहाराचे पोषक घटक, आणि सामाजिक व सांस्कृतिक विचार धारा यात तफावत पडत आहे. याची कारणे: जैवशास्त्रीय, पर्यावरणविषयक, ऐतिहासिक, भौगोलिक,

सामाजिक, सांस्कृतिक, अन्नविषयी घेतलेला व्यापारी दृष्टिकोन व जागतिकीकरण.

**सार्वजनिक आरोग्य व आहार:** सध्या आहारांवर शास्त्रीय व तंत्रज्ञानीय विचारांचा पगडा बसला आहे. हे शास्त्रीय, तंत्रज्ञानीय, अन्नाविषयीचे ज्ञान फक्त गेल्या २५० वर्षांतील आहे व अपूरे आहे. सांस्कृतिक आणि पारंपारिक रूढीने चालत आलेले ज्ञान खूपच जुने आहे.

अन्नाविषयीच्या आयुर्वेदीय कल्पना व ज्ञान याकडे दुर्लक्ष करून चालणार नाही. तेही समजून घेतले पाहिजे. उदा. (अ) एखादा पदार्थ थंड वा उष्ण असतो. (ब) समन्वय साधता न येणारे पदार्थ उदा. दूध व फळे. या सर्वांतील त्रुटी समजून घेऊन एक सर्वसमावेशक अभ्यासक्रम केला पाहिजे. तसं पाहिलं तर विज्ञानातील सर्व शाखा – उदा. शेती, अर्थशास्त्र, जीवरसायनशास्त्र, वैद्यक, अन्न, मानवशास्त्र आहाराशी निगडीत आहेत. शास्त्रज्ञ सहसा एककल्ली वृत्तीने काम करतात. त्यामुळे माहितीची देवाण-घेवाण करायला, समन्वय साधायला कोणी तयार नसते. माणसाचा आहार तयार होण्यासाठी जा गोष्टी लागतात त्या कौटुंबिक व सामाजिक पातळीवर एकमेकांशी संबंधीत असतात. आहारविषयीच्या सर्व समस्या या घटकांवर अवलंबून असतात.





सार्वजनिक आरोग्यात मलेरिया, क्षयरोग, पंडुरोग, वजनघट इत्यादींसाठी साधी उपाययोजना करता येते परंतु मधूमेह, कॉरोनरी हृदयरोग, स्थूलता, उच्च रक्तदाब कर्करोग, हे गुंतागुंतीचे रोग. यांची मुळ कारणे: इन्स्यूलीन अवरोध, रोहिणीविलेपी विकार, गर्भीय कुपोषण, अयोग्य जीवनपद्धती. विकसित देशात सामाजिक सुबत्ता असते. याउलट अविकसित देशातील समाजाला सांसर्गिक व अन्य रोगांना तोंड द्यावे लागते. सामाजिक सुधारणा व जीवनपद्धतीतील बदल, प्राथमिक आरोग्य सेवा व सुविधा यांचे वितरण निट होत नाही, मुख्य कारण दारिद्र्य आहे (हा परिणामही). याचा सर्वकष परिणाम म्हणजे कुपोषण व खुंटलेली वाढ. याउलट सुबत्तेचा परिणाम स्थूलता, जगभर निरनिराळे नवीन जंतुसंसर्ग होत आहेत. कोटला मार्ग चोखंदळावा हा प्रश्न आहे.

सार्वजनिक आरोग्यसेवेत निर्णय घेणे कठीण असते उदा. लाखीडाळीमुळे होणारा लॅथिरिझम रोग. यावर नियंत्रण व प्रतिबंधक उपाय कसे योजावेत? लाखी/ केसरी डाळींची लागवडच बंद करावी, का लोकांनी ती कमी खायला म्हणजे जेवणाच्या पदार्थांच्या पंचविस टक्के खायला सांगावे किंवा गरम पाण्यात ती काही तास भिजवावी, किंवा उकळावी व वरची विषारी निवड फेकून दयायला सांगावे? प्रसारमाध्यमे अशा प्रकारे होणाऱ्या बळींची संख्या फुगवून 'भूकबळी' या सदरात प्रसिध्द करतात. आरोग्य खाते व सरकारही या बाबतीत आवाज

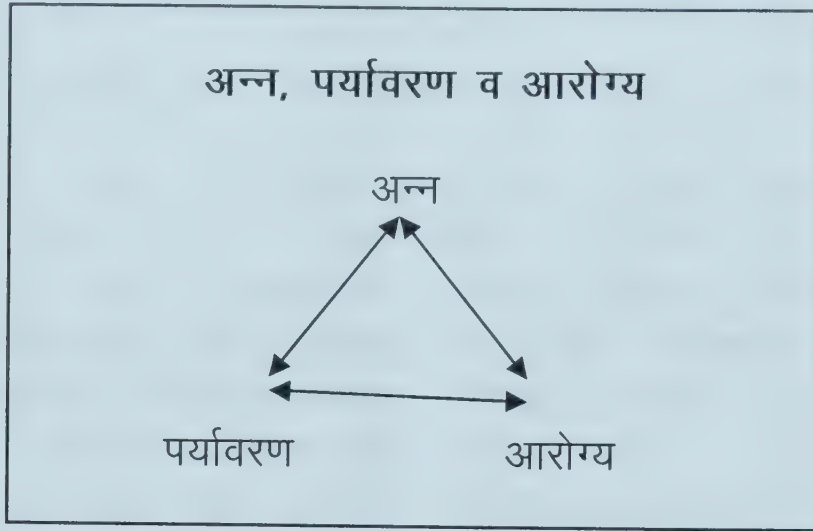
उठवते. पण त्याचा परिणाम दिसत नाही. कुपोषण होत असले तरी मृत्यूचे कारण पचनक्रियेचा किंवा श्वसनसंस्थेचा जंतुसंसर्ग असते. याकडे दुर्लक्ष होते. अन्नाची स्वच्छता ही आरोग्य खात्याची डोकेदुखी. रस्त्याच्या कडेला असणाऱ्या खाद्यगाड्या, धाबे, खाद्यपदार्थ तयार करणारे कारखाने हे सर्व स्वच्छतेचे नियम पाळतात का? कच्चा माल दर्जेदार असतो का? खाद्यपदार्थ टिकण्यासाठी टाकलेली रसायने दीर्घ मुदतीसाठी सुरक्षित आहेत का? खाद्यपदार्थांना कसला उपसर्ग तर झालेला नाही ना? एक ना अनेक प्रश्न उभे असतात. उत्तरे माहीत नसतात. याउलट जुन्या रूढीतील काही चालीरीती, ज्या आता कोणी पाळत नाहीत, जंतुसंसर्ग टाळण्यासाठी निर्माण झालेल्या होत्या. उदा. सोवळे, पवित्रतेच्या मार्गे अन्नाचा जंतुसंसर्ग टाळला जायचा. या पद्धतीचा उगम निर्जंतुकीकरणातून झाला असावा. प्राचीन भारतात होत असणारी नाकाची अवरोपण शस्त्रक्रिया व अन्य यशस्वी शस्त्रक्रिया बघता निर्जंतुकीकरणाचे ज्ञान त्यावेळेच्या लोकांना नक्कीच असावे. जुनं ते सोनं. स्नान करून स्वतः धुतलेले स्वच्छ कपडे घालून स्वयंपाकाला यायचे, स्वयंपाक करताना दुसऱ्या कोणाचा संपर्क येऊ न देणे, ताटातले उरलेले (टाकलेले) अन्न फेकून देणे या स्वच्छतेच्या दृष्टीने चांगल्या चालीरीती.

**स्वच्छता:** जंतुशास्त्राच्या दृष्टिकोनातून वैयक्तिक स्वच्छतेला फार महत्त्व आहे. मलमुत्र विसर्जनानंतर, जेवणाअगोदर हात स्वच्छ धुणे हा



फक्त स्वच्छतेचा भाग नाही तर हाताला लागलेले जंतू, कृमींची अंडी धुवून टाकणे हा अति महत्वाचा भाग आहे. हात स्वच्छ धुता का?' हा प्रश्न विचारल्यावर बहुतेक सर्व होकारार्थी उत्तर देतात. पण प्रत्येकाच्या स्वच्छतेच्या कल्पना वेगळ्या असतात. हात स्वच्छ धुणे म्हणजे स्वच्छ धुतलेला चमचा वापरण्यासारखेच असते.

मानवी आहार हा पर्यावरणाचाच एक भाग. त्याचा वेगळा विचार करून चालणार नाही. मात्र सध्याचे बरेचसे आहारतज्ञ याकडे सोयीस्कररित्या दुर्लक्ष करतात. अन्न आणि आपले आरोग्य पर्यावरणावर अवलंबून असते. पर्यावरण प्रत्यक्षपणे किंवा अप्रत्यक्षपणे आपल्या आहारावर परिणाम करते. भारतीय रेल्वेखाते दिवसाकाठी ५१,००० हजार ते ७१,५०० मेट्रीक टन विष्टा रेल्वेमार्गावर फेकते.



**अन्न आणि संशोधन:** शेती, अन्न, ग्रामीण सुधारणा आणि अन्य विभाग यांचा समन्वय साधण्यासाठी महत्वाच्या गोष्टी म्हणजे शेतीच्या पध्दती, आहाराची वेगवेगळी आवश्यकता, निरनिराळ्या आहारपध्दती, दूषित अन्न व पाणी आणि अन्न साखळीचे शेवटचे टोक म्हणजे माणूस. शास्त्रीय संशोधनाचा सामाजिक आरोग्य पध्दती व आहार यात किती सहभाग आहे यावर विचार करणे मनोरंजक ठरेल. यात असे आढळून आले की (अ) स्थानिक अन्न वापरावे (ब) शाकाहारी आहार मांसाहारी आहाराइतकाच पोषक आहे. (क) डाळी व कडधान्ये यांच्या मिश्रणातून तयार केलेले निरनिराळे पदार्थ पोषक असतात (ड) अर्भकांना सर्वोत्तम आहार म्हणजे आईचे दूध. पूर्वापार माहिती असलेल्या या गोष्टी पुन्हा शोधून काढण्यात शास्त्रज्ञांनी एवढा वेळ, श्रम व पैसा खर्च करून नवीन काय मिळविले!

भारतात अंगावरचे दूध पाजण्याची प्रथा अद्यापही आहे. आमच्या एका अभ्यासात असे आढळून आले की ८८ टक्के लहान मुले आईच्या दूधावर जगतात. उरलेल्या मातांना पुरेसे दूध येत नाही अथवा आजारपणामुळे दूध देता

येत नाही. सहा महिने ते साडेतीन वर्षापर्यंत अंगावरचे दूध पाजणे चालते. अर्ध्या स्त्रिया पहिल्या दिवसाचे चिकासारखे दूध मुलांना देत नाहीत. फक्त सहा टक्के माता मुलांना डब्यातील दूध व अन्य 'बेबी फूडस्' देतात. व्यापारी प्रचारामुळे मुलांना अंगावरचे दूध दिले जात नाही. ही 'बेबी फूडस्' महागडी व अनावश्यक असतात. युनिसेफ व जागतिक आरोग्य संघटनेने स्तनपानासाठी खास कार्यक्रम हाती घेतला आहे. जीवनसत्त्वे, ग्लुकोज, प्रथिने इत्यादींचा अनावश्यक वापर अबाधित चालु आहे. प्रमाणीकरण दूरच राहीले.

जन्मतःच असलेले वजन अर्भकाच्या आरोग्याचे द्योतक आहे. तुलना करण्याचे प्रमाण मात्र शास्त्रीय नाही. शिफारस केलेले प्रमाण वजन २५०० ग्रॅम असले तरी ते डब्यातल्या दुधावर वाढलेल्या मुलाचे असल्यामुळे जागतिक आरोग्य संघटनेने ते प्रमाण कमी केले आहे. वांशिकताही याबाबतीत विचारात घ्यावी लागेल. पंजाबी मूल व नागालॅंडमधील मूल यांची तुलना योग्य ठरेल का? त्याचप्रमाणे मुलगा व मुलगी यांच्यात फरक असणे स्वाभाविक आहे.



जन्म-वजनाचे प्रमाण सर्वासाठी एकच धरणे हे कितपत योग्य आहे? या चुकीच्या गृहितकामुळे सामान्य अर्भकाला कमी वजनाचे किंवा कुपोषित म्हणणे चुकीचे आहे.

**भारतातील पोषक कार्यक्रमातील त्रुटी:** बरेच कार्यक्रम चांगल्या दृष्टिकोनातून आखले जातात पण त्याच्या प्रभावाचा विचार केला जात नाही. लहान मुलांची योग्य वाढ करण्यात आय.सी.डी. एस.ला अपयश आले आहे. सदोष आहारामुळे होणारा पंडुरोग यासाठी राष्ट्रीय कार्यक्रम हाती घेण्यात आला होता. परंतु बहुसंख्य गरोदर स्त्रिया प्रसूतीच्या वेळी पंडुरोग झालेल्या आढळतात. याउलट 'अ' जीवनसत्त्व देण्याचा कार्यक्रम जरी विस्कळीत असला तरी रातांधळेपणा व 'अ' जीवनसत्त्वाची कमकरता मुलांमध्ये आढळून येत नाही. क्वाशियॉरकॉर व बालपेश क्वचितच आढळतात.

राष्ट्रीय पोषक कार्यक्रमात घटक विभागातील सामंजस्य, समन्वय व सहकार अभावानेच दिसतात. ग्रामीण आरोग्य व्यवस्था आरोग्य विभागाकडे, आय.सी.डी.एस. कार्यक्रम सामाजिकस्वास्थ्य खात्याकडे, अन्न उत्पादन वाढवण्याचा कार्यक्रम अन्नखात्याकडे, शाळेतील दुपारच्या जेवणाचा कार्यक्रम शिक्षण खात्याकडे व 'अन्नासाठी काम' कार्यक्रम ग्रामीण विकास खात्याकडे. यांचा समन्वय कसा साधणार?

योग्य वेळी योग्य प्रमाणात पुरवठा करणे, साठवणुकीसाठी सुविधा, इत्यादी, प्रश्न शसनापुढे उभे ठाकतात. कर्मचारींची सोय, जाण्यायेण्याची सहजता, इत्यादी गोष्टींवर लक्ष्य ठेवले जाते. गरीब लोक, पण लहान मुले, गरोदर स्त्रिया ज्यांना खरोखरच गरज असते त्यांच्यापर्यंत माहिती व अन्न पोचतच नाही. दुपारच्या शालेय जेवणाच्या कार्यक्रमात जर पूरक अन्न पदार्थ दिले तर घरचे जेवण टाळण्याचा प्रश्न सुटेल. उपाहारासाठी स्थानिक पदार्थ खूप असतात ते द्यावेत जेवणाचे ऐवजी.

जागच्या जागी तयार अन्न देण्याने प्रश्न सुटत नाही. यात तोटे व धोके अनेक आहेत. अन्नाला जंतुसंसर्ग होऊन मुलांना त्रास होण्याची

भीती असते. फुकट अन्नामुळे स्वतःवरचा विश्वास कमी होतो, असहाय्यतेची भावना निर्माण होते व भिकेची प्रवृत्ती होते, स्वाभिमान नष्ट होत जातो. सांस्कृतिक व मानसिक धक्का कोवळ्या वयात मिळतो. मानववंशशास्त्राच्या दृष्टीकोनातून बघितले तर व्यक्तीपेक्षा कुटुंब हा या कार्यक्रमासाठी घटक धरला पाहिजे. घरी नेण्यासाठी अन्न, कामाबदल्यात अन्न, अन्नसाठी सबसिडी वगैरे एका कार्यक्रमातच अंतर्भूत केले पाहिजे. वर उल्लेख केलेल्या त्रुटी यामुळे काही प्रमाणात कमी होतील. केंद्रीकरण केल्याने अनेक प्रश्न निर्माण होतात. म्हणून विकेंद्रीकरणाला पर्याय नाही.

**मानव शास्त्र:** अन्न वाटून घ्यायची पध्दत ही भारतीय संस्कृती आहे. त्याकडे दुर्लक्ष करून चालणार नाही. एकच पदार्थ ६ महिन्यांपासून ६ वर्षांपर्यंतच्या मुलाला चालणार नाही. आहाराची पध्दत व चव प्रत्येक कुटुंबाप्रमाणे बदलते. अन्न घरी शिजवले जाते तेव्हा आवड निवड लक्षात घेतली जाते. प्रत्येक स्त्रिला पाककला येते शिकवावी लागत नाही. अन्न कुटुंबात वाटून घेतले तरी कुपोषणग्रस्त मुलांवर दुष्परिणाम होत नाहीत असे आढळून आले आहे.

बरेचसे आहारातले पदार्थ धार्मिक, सणवार व सामाजिक कार्यांशी निगडित असतात. पाश्चात्यांमध्ये सजावट व पदार्थ वाढण्याच्या पध्दतीकडे जास्त लक्ष पुरवले जाते त्या मानाने पदार्थाकडे कमी, भारतीय पध्दतीत ताटात सर्व पदार्थ एकदमच वाढले जातात. एकापाठोपाठ दुसरा अशी कमवारी (कोर्सेस) नसतात. गरिबाघरचे लग्नातले जेवण बघितले तर कळेल की त्यांनाही चांगले पदार्थ व संतुलित आहार माहिती असतो, फक्त रोजच्या जेवणात त्यांना ते परवडत नाहीत.

'उपवासामुळे रोजच्या जेवणाव्यतिरिक्त अन्नपदार्थ खाण्यात येतात. अर्थात अशा उपवासामुळे स्थूलता कमी होण्याची शक्यता नसते. १९६२ साली आम्ही केलेल्या पाहणीत असे आढळले की उपवासाच्या दिवशी जास्त प्रथिनयुक्त व उश्माकांचा आहार घेतला जातो! कारण त्या दिवशी दूध व शेंगदाणे जास्त



प्रमाणात खाल्ले जातात. एकादशी, दुप्पट खाशी ही म्हण योग्य आहे.

आहारा व्यतिरिक्त, अन्न सांस्कृतिक-दृष्ट्या व धार्मिकदृष्ट्या महत्वाचे असते. उदा. सुरक्षिततेसाठी वाहनांना लिंबूभिरच्या लावणे, चहाचे दुकानदार धंदा सुरू करण्याआगोदर एक कप चहा रस्त्यावर फेकतात, हिंदूच्या धार्मिक विधीत अक्षता टाकतात, यज्ञात/होळीत आहुती देतात, कोठल्याही उद्घाटन प्रसंगी नारळ फोडतात. एखाद्या समारंभात शॅपेन उडवली की मी अस्वस्थ होतो. पण या सर्व प्रथा चालू आहेत!

**व्यापारी लुबाडणूक:** अन्नाबद्दलच्या व्यापारी दृष्टीकोणातून लोकांची लुबाडणूक केली जाते. अन्नाच्या कमतरतेतून जीवनसत्वांचा शोध लागला. या शोधामुळे जीवनसत्वयुक्त योग्य आहार लोकांपुढे मांडण्याऐवजी जीवनसत्वांचा व्यापारी फायदा उठवण्याची प्रवृत्ती बळावली. तज्ञांच्या म्हणण्याप्रमाणे रातांधळेपणासाठी 'अ' जीवनसत्वांचा प्रचंड मात्रा देणे योग्य नाही.

चयापचयाच्या अभ्यासातून व्यापारी दृष्टीने लुबाडणूक करायला आणखी काही कुकर्म मिळाले. उदा. तंतू, ॲण्टीऑक्सिडण्टस् व बायोप्लाव्होनाईड्स आणि सूक्ष्म तत्वे. जेवणाच्या पदार्थांचा खमंग वास आला की उष्मांकाचा विचार बाजूला सारला जातो. वरील सर्व गोष्टी भाज्या, फळे, चहा यात भरपूर मिळतात व आपल्या नित्याच्या आहारात असतात. एक गोष्ट मात्र खरी की खाद्यपदार्थांच्या व्यापार्यांना लोकांना फसवण्यासाठी नवीन युक्ती मिळाली आहे. श्रीमंतांना या गोष्टींची आवश्यकता नसते आणि गरिबांना लागतो संतुलित आहार. कोणत्याही गोष्टींचा 'अतिरेक' टाळावा. 'ई' जीवनसत्वाचा उपयोग अजूनही नीट कळला नाही तरी त्याचा खप प्रचंड आहे. काहीही झाले तरी संतुलित आहाराचा फायदा रूग्णांना होण्याऐवजी, ॲण्टीऑक्सिडण्टस् व बायोप्लाव्होनाईड्स आणि सूक्ष्म तत्वे युक्त पदार्थ तयार करणाऱ्यांनाच होतो.

**माणूस निर्मित प्रश्न :** आहाराविषयी खरा प्रश्न स्वतः माणूसच. नीट विश्लेषण केले तर लक्षात

येईल की अन्नाविषयी धोरण, निर्मिती, वाटप, किमती ठरविणे हे सगळे राजकारणी व सत्ताधिकारी यांच्यावर अवलंबून असते. सामाजिक व सांस्कृतिक घटकही मानव निर्मितच असतात व त्यांचा पुढील गोष्टींवर परिणाम होतो. आहार पदार्थांची निवड, खाण्याच्या पध्दती वगैरे. उदाहरणच द्यायचे झाले तर (अ) रोख पैसा देणारी पिके की धान्ये, (ब) पाटबंधारे, जमिनीची रासायनिक तपासणी, (क) अन्नाची साठवण व वाटप (ड) गलिच्छपणा (इनसॅनिटेशन), (इ) अन्नाची निवड व त्यातील पोषक द्रव्ये, (ई) अर्थकारण, (ड) व्यापारी लुबाडणी, (ऊ) मानसिकता आणि वागणे, (ए) भेसळ, (ऐ) दारिद्र्य, अज्ञान व आहाराची पुरवणी.

**नवे पर्व - प्रगती की अधोगती:** नवीन जीवनशैलीत आहार आणि खाद्य पदार्थ यात खूपच बदल झाले आहेत. सार्वजनिक आहारपध्दतीत खूपच उलथापालथ झाली आहे. कारणे - अर्थकारण, व्यवसाय, सामाजिक स्थलांतर, पर्यावरण, मानसिकता व अन्य. आहारातील विविधता रोजचीच असते. खाण्याच्या पध्दतीतील वैचित्र, चालीरीती, भ्रामक कल्पना, धार्मिक शिकवण, शास्त्रीय माहिती, आवड-निवड, तयार अन्न, रेस्टॉरंट, स्वतःची प्रकृती, व्यवसाय या सर्वांचा आहारावर परिणाम होतो.

लोकांचं घरचं खाणं कमी व दारचं (बाहेरचं) जास्त होत चालले आहे. बाहेरच्या खाण्यातील तोटे: (अ) जास्त खाणे, (ब) हिन दर्जाचे खाणे, दुषीत अन्न, (क) मीठ, साखर व स्निग्ध पदार्थांचे अतिसेवन, (ड) सुरक्षित अन्नाचा अभाव. बाहेर खाण्याखेरीज आधुनिकीकरणाचा आणखी शाप म्हणते दारू पिणे. अन्न तयार करणारे कारखाने, हॉटेले, रेस्टॉरंट कायमचे राहणार आहेत. अन्नाची खूप जाहिरात होते. प्रकिया केलेले खाद्य पदार्थ, उपहाराचे तयार पदार्थ, जंक फूड्स, बेबी फूड्स, टॉनिक, गॅस भरलेली पेये, सुंदर आकर्षक वेष्टणात गुंडाळून मिळतात. अगदी कानाकोपऱ्यात अशा स्वरूपात मिळतात. ॲस्पार्टेमसारखे गोडी असणारे कृत्रिम पदार्थ गॅस भरलेल्या पेयात आढळतात. शरिरात त्यामुळे आम्लता वाढते. या पेयांच्या सतत



वापराने स्नायुचे दुखणे, वळ येणे सुरु होत. दैनिक तसे निरुपयोगी. त्यातील अल्कोहोलमुळे भुके फक्त थोडी वाढते. योग, अन्य व्यायाम याखेरीज, काही हेल्थ क्लबने वजन कमी करायला, मधुमेह व हृदय रोग्यांसाठी काही आहार चालु केले आहेत. त्यावर कसलंच नियंत्रण नसते व शास्त्रीय दृष्ट्या योग्यही नसल्याची शक्यता असते.

विज्ञान व तंत्रज्ञान यांच्या प्रगतीतून काही वेळा सोप्या व स्वस्त गोष्टी गुंतागुंतीच्या व खर्चीक होतात. सुंदर व आकर्षक वेष्टणात गुंडाळलेले तयार खाद्य पदार्थ गिऱ्हाईके आकर्षून घेतात. 'रेडी टू इट' या सदरात मोडणारे पदार्थ फक्त 'खास' लोकच वापरू शकतात. व ते प्रतिष्ठातपणाचे लक्षण समजले जाते. त्यांचे अनुकरण करणाऱ्या मध्य व गरीब वर्गाचा पैसा उधळला जातो.

अन्नातील भेसळ दिवसेंदिवस वाढत आहे. बाजारभावापेक्षा कमी किंमतीत मिळणारे अन्न विकत घेणाऱ्यांकडून अन्न भेसळीला प्रोत्साहन मिळत आहे. एखादी गोष्ट बाजार भावापेक्षा अतिशय स्वस्त मिळाली तर भेसळीचा व हीन दर्जाचा संशय घ्यावा. मॉल संस्कृतीत कमी भावात भाज्या मिळतात. अशा गोष्टी घेणे टाळावे. प्रक्रिया न केलेल्या गोष्टीसुद्धा चांगल्या असतात. दारिद्र्य व कुपोषण यांची मुळ कारणे म्हणजे अधिकार न देणे, असमानता व सामाजिक अन्याय. पुरेसे अन्न, निवारा, नोकरी आणि आरोग्य या गोष्टींही मिळत नाहीत. हा प्रश्न युध्दपातळीवर सोडवण्यासाठी जागतिक प्रयत्न चालु आहेत.

**लठ्ठपणा:** लठ्ठपणा व अतिवजन हे खूप खाण्याचे परिणाम. साधारणपणे व्यक्तीचे २१ व्या वर्षी जे वजन असते ते 'आदर्श' वजन. त्यानंतर वाढणारे वजन चरबीमुळे होते व ते आढोख्यात टेवले पाहिजे. अतिवजन/स्थूलपणा बीएमआय आणि कटि/नितंब प्रमाणावरून ठरवता येते. बीएमआय १८.५ ते २० असावा. तीन आठवड्यांत १० किलो वजन कमी होते. अशा जाहिराती झळकताना दिसतात. हे अशास्त्रीय व घातक आहे. बहुतेकजणांचे वजन सहा महिन्यांत पूर्ववत येते.

म्हणून सातत्याने प्रयत्न केले पाहिजेत तरच वजन कमी राहत.

काही व्यक्ती अगदी कमी खातात तरीही स्थूल असतात. त्यांच्या अतःस्त्रावी ग्रंथां सदांच असण्याची शक्यता असते. औषधे व शस्त्रक्रिया याचा कितीपत फायदा होईल हे सांगता येणार नाही. खूप आहारतज्ञ अगदी नवा आहार सांगतात. असा आहार कृतीत आणणे कठीण असते व तो जास्त काळ पाळला जात नाही. लवकरच ती व्यक्ती पूर्वपदावर येते. 'डाएटिंग' करणाऱ्या बव्हंशी माणसांचे वजन थोड्याच काळात परत वाढते. मधुमेहीमध्ये त्यामुळे रक्तशर्करा परत वाढते. आपल्या रोजच्या आहारात बदल करणे जास्त सोपे जाते. भरमसाट बदल टिकत नाही. मधुमेहींना मधुमेहीआहाराबद्दल भ्रामक कल्पना सांगितल्या पाहिजेत. रोजच्याच आहारात थोडासा बदल करून दिला पाहिजे.

कच्च्या व शिजवलेल्या अन्नाचे घटक दर्शविणारे तक्ते असतात. पण त्यातही धोके असतात. या तक्त्यांची मर्यादा कळली नाही तर त्याचे स्पष्टीकरण व अनुमान काढणे चुकीचेही ठरू शकेल. व्यक्तीची उष्मांकानुसार खरी गरज तक्त्यापेक्षा वेगळी असू शकते. या तक्त्यांतील आकडे कर्बयुक्तता, स्निग्धता व प्रथिने बरोबर ठरतात. पण भाज्या, फळे, यासाठी तसे होत नाही कारण पाण्याचा अंश बदलतो. डाळी व कडधान्ये यांच्यासाठी तक्ते बरोबर ठरतात. तरीपण योग्यरीतीने वापरल्यास या तक्त्याचा उपयोग होतो.

**स्वावलंबन:** उत्तम मार्ग म्हणजे रीतीप्रमाणे असणारा व पौष्टिक आहार खावा. नित्योपयोगी सूचना:

- १ संयम/मर्यादितपणा हा सुवर्णमध्य. अति सर्वत्र वर्ज्ययेत।
- २ कोणतेही अन्न नाकारू नका, फक्त कमी खा.
- ३ प्रत्येक पदार्थाची एक वाढणी घ्यावी.
- ४ आहारात विविधता असावी. संतुलित आहाराची ही गुरुकिल्ली आहे.



- ७ सर्व वनस्पती तेले, डालडा सोडून, थोड्या प्रमाणात आहारात असावी. आलटून पालटून निरनिराळे तेल वापरावे.
- ६ आहार नियमित असावा. आहार पचण्यासाठी जेवणात दोन तासांपेक्षा अधिक अंतर असावे.
- ७ सणावारी पोटभर जेवावे व खंत बाळगू नये! मात्र त्यानंतर हालका आहार असावा. ८ पूरक अन्न टाळावे.
- ८ शरीराला ओमेगा ६ व ओमेगा ३ दोन्ही आवश्यक आहेत.
- ९ तज्ञांचा अथवा वर्तमानपत्रातला सल्ला डोळे झाकून पाळू नका.
- १० गोड, खारट व तेलकट पदार्थ कमी प्रमाणात खावेत. उदा. पक्वाने, तळलेले पदार्थ, लोणची, साय.
- ११ शीत पेये, प्रक्रिया केलेले अन्न टाळावे.
- १२ फक्त दोन वेळा जेवण्यापेक्षा तोच आहार विभागून चारपाच वेळा खावा.
- १३ तंतू, अँटीऑक्सिडण्टस् व बायोफ्लाव्हा.

-नाईड्स आणि सूक्ष्म तत्वांसाठी पूरक पदार्थावर खर्च करू नका. ही तत्वे मसाले, भाज्या, फळे, मोड आलेले कडधान्ये, डाळी, लसूण, जवस, मेथी, बिनदुधाचा चहा, वगैरे पदार्थात तसेच पारंपारिक आहारात आपोआप मिळतात.

- १४ पाणी आठ ग्लासांपेक्षा जास्त आवश्यक असतेच असे नाही. लघवी प्रमाणात होत असेल व तहान भागत असेल तर पाणी पुरेसे असते.

**सारांश:** थोडक्यात सांगायचे म्हणजे उत्तम आहारासाठी आपले पारंपारिक अन्न चांगले. आपल्या नेहमीच्या जेवणात माहिती असलेले सर्व पोषक घटक असतातच. पण माहिती नसलेले व शोध न लागलेल घटकही असतात. पारंपारिक शहाणपणच माणसांचं मानवनिर्मित रोगांपासून संरक्षण करेल.

जीवनउत्सव २००९, नाशिक, ३०जानेवारी ते ४ फेब्रुवारी २००९



**Part A**

**Communicable Diseases**







# 1. Efficacy of Sterilization method has yet to be demonstrated (Control of rabies through limiting population of dogs)

The exact number of dog-bite victims in Pune is not known. However, it is estimated that about 30,000 cases of dog-bite occur in Pune annually. Of these, about 10,000 persons go to the PMC, s Gadikhana clinic for treatment. Because of high rate of occurrence of rabies infection in dog bite victims, each case requires risk evaluation as an emergency measure, immediate protection through the treatment of the wound, guidance for further care and post-exposure immuno-prophylaxis with anti-rabic vaccine and hyper-immune serum, if needed. Unfortunately, entire long-drawn process of immunization of dog-bites is quite bothersome and painful. Apart from the physical and psychological trauma, the financial burden too is high. Under these circumstances, it is desirable for the PMC to institute public health measures for preventing dog-bite.

This proposal is a follow-up activity of a public seminar-cum-panel discussion on 'The control of stray dogs in Pune' which was held under its programme of "Health Sciences for the Society" of the School of Health Sciences, University of Pune. It was held at the School on 26<sup>th</sup> August 2000. The proposal is also based on the advocacy of the World Health Organization on rabies control and elimination. For prevention of dog-bite and elimination of rabies in Pune metropolis, a well coordinated programme has to be evolved jointly by all the local authorities.

There are three ways of doing this: habitat control, controlling access to food, destruction, and reproductive control of stray dogs. Habitat control and controlling access to food sources such as public garbage containers, discarded food and animal carcasses is a good and effective biological measure. However, given the poor standard of

solid waste disposal and the limited capability of the municipal administration, this approach seems impractical. For various reasons, control of dog population and rabies through destruction of stray dogs has not been effective in developing countries. Naturally, this method cannot be given the priority. The method of choice will be the reduction of fertility of dogs by sterilization.

The Blue-Cross Society in Pune has some experience in this aspect. So far, they claim to have done over 10,000 sterilizations of stray dogs. Hardly 15 dogs are sterilized in a month. Critical view of their data and presentation reveals that their strategy for controlling stray dog population in the city has not worked. One of the reasons for this situation is that the organization is covering the entire city and their resources fall short of the probable requirement. The practical way of dealing with this situation is to allocate an appropriately sized locality to the Blue Cross Society. Here, a scientifically controlled field study should be done to test the efficacy of the sterilization programme. Until the efficacy of reproductive control of dog population is demonstrated in Pune, the present practice of discriminate destruction of dogs, with a view of controlling human rabies infection, should continue.

Pune should be mapped according to the 'dog's regions or zones'. Rabies death pertaining to a particular zone will indicate that some animal in that geographical area is serving as a source of infection. Therefore, such an area should be declared 'rabies infected'. As a special case, all stray dogs should be destroyed in this 'infected zone' and zero stray dog status should be maintained there for at least for two years.

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Is sterilization an effective strategy for reducing stray dog population? Monday Debate, Maharashtra Herald, Monday, July 19, 2004

**Note:** 'Stray Dog' is a misnomer. These dogs are there because of the food and shelter (habitat) is readily provided by the people and self-local government. If the entire biodegradable solid wastes (food for dog) is hygienically collected and disposed of in time, so-called 'stray dogs' will starve and go away. There will be no need to kill them. This is what has happened in the cities in Europe because of high standard of sanitation.



## 2. Report of the Committee Nominated by the Government of Maharashtra, Department of Public Health, Bombay, to Inquire into the Use of Anti-Cholera Vaccine in the Control of Cholera Epidemics.

**Introduction:** During the winter session, 1988, of Maharashtra Legislative Assembly held at Nagpur, an assurance was given during discussion on LAQ No. 68960, that a Committee shall be appointed to submit a report on matters related to incidence of Cholera, Gastro-enteritis and Diarrhoea, use of anti-cholera vaccine, etc. Consequently, Government of Maharashtra appointed a Committee under Government Resolution (in Marathi), Public Health Department No. EDA 1088/CR 268/Health-7, dated 7/3/1989. The committee consists of the following members:

1. Dr. N.S. Deodhar, Ex-Director, All Indian Institute of Hygiene and Public Health, Calcutta (now in Pune). — Chairman
2. Dr. S.V. Apte, Director, Institute of Immuno-haematology, K.E.M. Hospital, Bombay. Member.
3. Dr. K.H. Dave, Director, Enterovirus Research Centre, Haffkine Institute, Bombay.
4. Director or his Representative, National Institute of Cholera and Enteric Diseases, Calcutta.
5. Director or his Representative, National Institute of Communicable Diseases, Delhi.
6. Director or his Representative, National Institute of Virology, Pune.
7. Dr. Dilip Dhande, Yugdham Complex, Central Bazar Road, Ramdas Peth, Nagpur.
8. Dr. B.S. Choubey, Dean, Government Medical College, Nagpur.
9. Dr. P.V. Sathe, Joint Director, Medical Education and Research, Bombay. — Convener.

**Terms of Reference:** During and following the rainy season of 1988, there were epidemics of cholera, gastro-enteritis and diarrhea all over Maharashtra. Anti-Cholera immunization on a limited scale, were carried out as a preventive measure especially in river-side villages and villages which were previously affected. The Committee was to report on the effectiveness of cholera vaccine, also taking into consideration whether the limited use of Cholera Vaccine in Cholera prone areas of Maharashtra has resulted in a higher incidence of cholera, gastro-enteritis & diarrhea. The Committee was also to make recommendations on measures to be taken in such epidemic periods.

**Deliberations of the Committee:** The Convener had a preliminary discussion with the Chairman and Dr. N.S. Wanere, Joint Director of Health Services (Health), Pune on 3/6/1989. The information to be supplied by Dr. Wanere to the Committee was identified. This included data for the years 1981 to 1989 for different districts and urban areas of the State for the attacks and deaths due to cholera, gastro-enteritis and diarrhea, the number of cholera prone villages, the anti-cholera immunizations carried out, etc. The reports of epidemiological investigations of the outbreaks were also made available, and reports of examination of water samples & stool samples. Circular from Directorate General of Health Services, Government of India on the use of cholera vaccine in natural calamities and in routine public health practice, and the minutes of consultation meeting on typhoid and cholera vaccine held on 29-1-1988 under the Chairmanship of D.G.H.S. were also provided as reference material to the Committee. There were further discussions between the Chairman and the Convener. After analysis of the voluminous data was completed, a meeting of the Committee was held on 17-10-1989 at Bombay. During this meeting, the Committee also had discussion with Dr. D.C. Badade, Jt. Director of Health Services, Bombay, and other officers of the Directorate of Health Services. The report of the Committee was finalized during this meeting.

**Observations:** Office of the Joint Director of Health Services (Health), Pune, provided to the Committee the reports on cholera in Maharashtra for the years 1981 to 1989 (up-to-date). These included the following reports — occurrence of cholera, anti-cholera immunization work, investigation reports on cholera outbreaks, water monitoring for chlorination, etc., for all the districts and taluks. The following observations were made:

1. There was no anticipatory anti-cholera immunization in the strict meaning of the term. Such a measure could be instituted only if an efficient and effective system for epidemiological surveillance exists. Considering the current state of the epidemiological and laboratory services in Maharashtra, it is perhaps not possible to establish such a system in near future.



2. It was obvious that anti-cholera immunization programmes were almost always taken up when the cases of or gastro-enteritis were reported from a village or a town. By and large, whenever there were more cases of cholera or when large outbreaks took place, the number of immunizations increased directly.
3. There was no uniformity as to what constituted 'Cholera Prone Villages'. The number of such villages varied considerably from year to year in several of the districts. Some District Health Officers had, however, prepared a proper list of the riverside villages, although scientifically there is no sound justification to label all such villages as cholera prone. The other District Health Officers apparently considered a village as cholera prone when a case of cholera was reported from that village. Thus, their list was, in reality, a list of cholera affected villages and not of the cholera prone villages.
4. Absence of true anticipatory anti-cholera immunization was clear from observation that immunization programme against cholera was not generally carried out in the so-called cholera prone villages unless cases of cholera were reported.
5. The reports of investigations of cholera outbreaks/epidemics were largely administrative in nature. Unless epidemiological investigations are done properly and the causal factors are identified, result of such studies will be of very little utility in the control of cholera or any disease for that matter.
6. Data were not available to study chronological relationship between occurrence of cases of cholera and undertaking immunization programmes. Epidemiological analysis was also not possible for want of comparability, data on risk of exposure, and other epidemiological parameters.
7. Generally no remedial steps were taken after the investigations so as to prevent recurrence of the epidemics, especially the long term measures to improve sanitation, cleanliness, etc.
8. The reports on water quality monitoring clearly showed potential contamination. There was ample evidence from these reports that chlorination of water, both in the villages and cities, was far from satisfactory. This was true even of the Municipal Corporations. Report after report showed poor bacteriological quality of water samples from the same area over long periods. However, there was no evidence of the concerned authorities having taken any corrective steps, even after finding that the drinking water was contaminated and potentially dangerous.

**The Scientific Up-date:** 1. As regards the efficacy of the currently available anti-cholera vaccine, the

protection after full immunization (two doses at an interval of 4-6 weeks) is only partial, 50 to 60 per cent, and immunity is short lived of 3-6 months duration.

2. If a fully immunized person gets an attack of cholera, severity of the disease is not affected and the probability of death remains the same as in the case of unimmunized person. The vaccine cannot prevent transmission of cholera vibrio to others.

3. An immunization programme is never effective as a measure to control epidemic. It may be effective only if it is anticipatory, if at all.

4. Person-to-person transmission and transmission by houseflies do not play a major/important role in the spread of epidemics of cholera.

5. Because of proven poor efficacy of anti-cholera vaccine, cholera immunization is no longer required for foreign country travel under the International Health Regulations.

6. Immunization programme against cholera generally creates a false sense of security to both those who are immunized and the health administrators. Such an activity should never supplant more effective control measures.

**Answers to Specific Questions:** 1. *Whether the incidence of cholera in 1988 in Maharashtra increased because of the limited use of anti-cholera vaccine, and that too only in the river-side villages and the villages affected earlier?* All the observations and the scientific evidence clearly point out that the efficacy of the currently available anti-cholera vaccine is quite low. In consideration of this it is incorrect to say that the limited use of anti-cholera vaccination resulted in the increased incidence of cholera (in the river-side villages, etc.). 2. *What is the utility of anti-cholera vaccine? What are the anti-epidemic measures recommended during an epidemic/outbreak of cholera?* Although the use of anti-cholera vaccine is not recommended during an epidemic of cholera, in an endemic area anticipatory immunization may serve as an adjuvant to the sanitary measures such as supply of safe drinking water, sanitary disposal of excreta, high standard of food hygiene, and high level of personal hygiene.

Mass immunization with anti-cholera vaccine during the last big epidemics of cholera in Delhi was not appropriate, and has unfortunately set a wrong example.

If epidemics of cholera are to be prevented, there is no substitute to the high levels of environmental sanitation and personal hygiene. Of the utmost importance are — sanitary disposal of



human excreta, protection of the drinking water supplies from contamination, and supply of bacteriologically safe water for drinking, etc.

The measures during an epidemic/outbreak of cholera include the following: (a) Prompt notification and early treatment of all cases to prevent dehydration and electrolyte imbalance. Concurrent disinfection is essential. Immunization of the contacts serves no purpose in terminating the outbreak. (b) Revamping public information that during an epidemic people should be very particular about cleanliness of hands before eating/drinking, and all aspects of food hygiene; freshly cooked and hot food should be eaten; fasting should be avoided; only safe (chlorinated) water should be consumed, etc. (c) Only properly disinfected water should be supplied for drinking and cooking. Anti-fly measures may be instituted. (d) Each outbreak/epidemic should be epidemiologically studied and investigated to find out the causative factors. Long term measures should be taken to either eliminate or contain the factors that caused

the epidemic/outbreak or take such steps to prevent recurrence of the events/situations that were responsible for the epidemic/outbreak. It is desirable to establish an efficient epidemiological service and institute strong epidemiological surveillance of the major communicable diseases as an integral part of any programme for disease control and prevention.

**Conclusion:** The belief that anti-cholera vaccination is an effective measure par excellence and a certain protection against cholera is false. The Directorate of Public Health should not be pressurized for anti-cholera immunization programme on any count. In fact, the Government should take necessary steps to undo the prevailing wrong belief about the anti-cholera vaccine.

High priority should be accorded to the prevention and control of all diarrhoeal diseases, rather than attending to cholera as and when it appears. Watery diarrhoeas kill far larger number of people, children in particular.

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Report of the Committee nominated by the Government of Maharashtra, Department of Public Health, Bombay, to Inquire into the Use of anti-cholera Vaccine in the Control of Cholera Epidemics, etc., 1988.



### 3. Delivery Systems in Communicable Disease Control and Eradication Programme — Some Problems of Research for a Future Set-up

No planning is worthwhile, both in the control and eradication of communicable disease, unless an effective delivery systems are provided so as to take the programme to all the people at all places. No programme can direct to the welfare of the community unless it deals with efficiency, happiness and health which not only makes human life useful, but also adds to it joy and pleasure.

In the delivery system of health, we have to consider three aspects: (a) Community of the people who are to receive the benefits from the programmes; (b) the medical and para-medical workers who are the direct givers-receivers of the reactions of the community and the feelers of the results & impact on the people of the programmes; and (c) the supportive services which include supplies, supervision, education and training, evaluation, coordination and leadership.

**The Background:** Since independence, our efforts have been to develop health services as an integral part of community development programme for the welfare of the people. Importance was given to the rural population which constituted about 80 per cent of the population and hardly any health service was available to them.

In our Five-Year-Plans, considering the pattern of illness in India, and high mortality, as a result of communicable diseases such as malaria, smallpox, cholera, tuberculosis, leprosy, filarial and trachoma. These control operations on such a large scale led to the establishment separate administrative organizations starting from the level of Government of India right down to the people in the villages.

Our programmes and concurrent scientific development met with varying degrees of success and set-back. But on the whole, the pattern of morbidity and mortality started changing. This has created a new situation which has to be taken account in further planning.

A new infrastructure of Primary Health Centre complex was developed in the rural areas for the delivery of comprehensive health services to the masses.

**Current Situation:** Some of the national programmes have been spectacularly successful. Malaria has been virtually eliminated from many

areas of the country. Several units covering large areas have entered into maintenance phase, but the general health services — primary health centre complex — have not developed adequately to take over as originally envisaged. Several factors are leading to unfortunate tragedy in the eradication of malaria, especially in some parts of the country. The urban malaria is becoming a growing problem and the continued focal outbreaks of malaria in the rural areas have necessitated reversion of some units back into the attack phase. Such set-backs have occurred especially in the States of Gujarat, Madhya Pradesh, Maharashtra, Rajasthan, Punjab, Haryana, Mysore and Orissa. In 1972, there were about 8.16 lakh of positive cases of malaria from these States.

As a result of National Malaria Eradication Programme, there has been some collateral benefits, e.g., other arthropod-borne diseases such as plague and sand-fly fever are no longer Public Health Problems in India.

A smallpox situation has showed rapid changes and there has been drastic reduction in the incidence of smallpox. The downward trend, however, was noted only up to 1970 and there has been continuous increase in the incidence of smallpox since then. The number of cases and deaths in 1971 almost doubled during 1972. In 1973, we experienced an outbreak of smallpox particularly in the North and Eastern India.

Cholera control is essentially the problem of environmental sanitation, an area where we have not progressed sufficiently. Cholera has been on the decline and the mortality has fallen significantly. However, the changing epidemiology of cholera following the introduction of *Eltor vibrio* in India has created new problems. There are several new areas of endemic cholera.

Tuberculosis is a major health problem but the national programme for the control of tuberculosis has not still been given the due priority. The contribution in the operational measures developed at our national centres, have been significant. But the effective translation of these measures in to plan of action continues to remain a major task for the future. Acute tuberculosis is certainly on decline but the problem of chronic pulmonary tuberculosis, more or less, continues as it was before.



Tetanus is obviously only next to tuberculosis as a cause of death due to communicable diseases. It is surprising that we have no national programme for the control of tetanus, a disease which can be easily prevented through active immunization and aseptic techniques.

**Defects in the present Delivery System:**

Weakness in the infrastructure of the general health services, both urban and rural (through the primary health centre complex) makes it inadequate for systematic delivery of comprehensive health care. Coverage is poor and we still have not been able to reach the poor man in the cities or in the villages. Unless the general health services reach the poor, effective control of communicable diseases would be difficult if not impossible. The scope of services is mostly limited to the curative component, it is essential to strengthen the preventive and promotive services.

Lack of active participation of the people in the community development programme prevents them from taking an active interest in health problems. It is essential to put health care programme on a firm footing through their active participation.

Poor supervision and guidance has led to failure of efforts at integration. The organizational set-up especially at the district level is vague, from the point of view of actual management. We cannot plan for future higher priorities in the villages unless the minimum needs for the rural areas are provided. Medical officers of primary health centres would function much effectively if they are provided necessary guidance and leadership.

Coordination is essential even for providing limited benefits. Health services have been adversely affected because of the time targets fixed for the family planning programme. Inoculation programmes which provide specific prevention of many infections have not been effectively implemented because of lack of cooperation.

**The number and quality of health auxiliaries:**

Many universally applicable principles of health administration have not been used judiciously. Apart from good supervision, there are other aspects that are also lacking, e.g., good training programmes for field workers, clear instructions for field staff, in-service training on the job, referral system, etc. Much of peripheral staff has been hurriedly pressed in to service without adequate training facilities and supervision. The population

to be served by each worker has been arbitrarily laid down and the logistic problems have not been fully studied.

**Organizational Set-up:** Much has been said about the problems arising out of the log-arm-programmes. However, nothing has been done about so called Basic Health Service, and training of multi-purpose workers. Whereas specialization would be desirable at the top level of administration, at the peripheral end of the health services all functions should be totally integrated.

**Lapses in Planning and Evaluation:** In planning the delivery of services for the control of communicable diseases, the importance of the pilot projects and the experience gained has not been fully realized. At times, pilot projects are conducted, but unfortunately the findings and experience arising out of such pilot projects has not been made use of in the final programme planning.

There is no inbuilt provision for evaluation of the control programmes except in case of National Malaria Eradication Programme and the National Filaria Control Programme. Unless there is an integrated evaluation and timely corrective action, we cannot ensure successful implementation of the control measures against the communicable diseases.

**Plan for Future Set-up & Areas for Research:**

*Administration* — Management skills, effectiveness, evaluation and cost-benefit analysis are some of the basic considerations that should draw careful attention. There should be willingness to bring about the necessary changes in the present set-up, however drastic they may be. Evaluation techniques should be worked out for each programme for communicable disease control.

*Vertical Programmes* — These need to be integrated with the general health services. In order to do this effectively, it is obvious that the existing structure and working of the Primary Health Centre Complex and of the Urban Health Organization needs study and strengthening. Integration involves many personal problems and conflict for want of proper understanding and attitudes. Several pilot projects would be needed to work out the ways in which the vertical programmes can be integrated in to the work of P.H.Cs. Optimum balance has to be reached between decentralization & centralization.



*Multipurpose Workers* — Training of the existing personnel and utilization of these in more comprehensive jobs should be paid highest attention. As much importance needs to be given to training of B.H.Ws. and A.N.Ms. as for medical graduates. The details of such persons to be newly trained, the objectives, content of education, job specifications, etc., would have to be worked out in the field situation. They should receive practical training. The country is so big and diverse that there cannot be any strict uniformity, and flexibility is essential so that the local needs can be satisfied. Multi-centered research would be needed to ensure availability and well trained and competent health auxiliaries. Training of supervisory staff, especially of Nurses, Midwives, Health Inspectors, Public Health Nurses and Health Supervisors or Educators would be of equal importance.

*Health Statistics* — Our recording and reporting systems should be complete, reliable and quick. Pilot projects on suitable organizational set-up to ensure the statistical needs are essential.

*Health Education* — Unless we design effective measures for active participation of the people, there will be many apparently impossible problems in the control of communicable diseases. Other factors which would help to create confidence in the minds of the people needs to be examined, e.g., involvement of the general practitioners, should be looked into.

*Education and Planning* — Training of the future doctor as a leader of the Health Team needs research and experimentation. Management skills are to be inducted.

It is essential to turn the modern medical knowledge in to rational action for welfare of the community. At the same time, one should note that both excellence and relevance in rural medicine are essential to stimulate and challenge the students and the people. Community medicine is not a dilution of science and technology, but enrichment of science with community.

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Note prepared for Meeting of Expert Group on Communicable Disease, Department of Science and Technology, Government of India, New Delhi, May 1973.



#### 4. Comments on the National Plan of Action on Children, Polio Component (2003-2015)

1. Poliomyelitis cannot be eradicated by 2005 only through immunization, unless efficient epidemiological surveillance, investigations and corrective measures, environmental health components are added.

2. I am at lost as to know how cases of poliomyelitis are made non-infectious. Please let me know the proposed method of attaining this feat. I can then comment.

3. Adding hepatitis vaccine to the other vaccines in the national immunization programme is likely to result further deterioration of regular immunization converge. Pulse polio campaign has already brought about significant drop in regular immunization coverage. This effect will be aggravated.

4. Targets set for environmental health have never been met in India and will never be met. There is no alternative to involve and empower people, *Panchhayati Raj Institutions*, decentralize, & assist them technologically and financially. Even today, water in Delhi is not safe! Less we talk the better. So long as we give highest priority to medical and hospital care, and neglect public health except during a big epidemic affecting economically better people, things will not improve.

##### Comments on the Pulse Polio Campaign:

1. Poliomyelitis is essentially a faecal-borne infection which primarily spreads through faecal-oral route. In the prevailing low standard personal hygiene, direct person-to-person spread through some form of contact – the hand-to-mouth transfer of virus from an infectious person – is also important. The virus is also present in throat discharges.

We in India live in substandard environmental health with poor coverage of safe disposal of faecal matter through sanitary latrines, defaecation in open field is common, drinking water supply is unsafe, standard of personal and food hygiene is poor, and interest of the community in active participation in health programmes is quite low.

2. Oral polio vaccine, if adequate, makes most of immunized persons immune from paralytic poliomyelitis. Pulse polio programme will certainly reduce the number of susceptible persons & thereby make it progressively difficult for the virus to

reach a susceptible host. However, vaccination has no effect what-so-ever on the environmental transmission of the virus. There is enough number of susceptible to get infected and allow virus multiplication and dissemination in the environment.

3. Secondly, a small percentage of the immunized children may get sub-clinical infection of polio and are thus able to spread the virus. Vaccination coverage under pulse is for below six year old children. This is under a valid presumption that the remaining population is not susceptible to get paralytic poliomyelitis. However, this does not mean that none of these persons will be able to get infected in the state of affairs described in a para above. Even a very small fraction of the population is adequate for the virus to maintain itself in the environment and by chance come across a susceptible child. With poor converge (well below 98 %) under pulse polio and about 60% under regular immunization programme, the natural history of polio infection is not much adversely affected for the purposes of the goal of eradication. It may be O.K. for the control.

4. Incidentally, it may be recorded that in Europe where immunization coverage is very high, most of the cases of paralytic poliomyelitis are among the fully immunized children.

5. Findings of the case-control epidemiological study of 1999 outbreak of paralytic poliomyelitis in Uttar Pradesh are revealing. While the median age at paralytic onset was 16 to 18 months, children up to the age of 14 years were involved. Most of the cases were due to type 3 virus which is known to have lower immunogenicity. Majority (89%) of these affected children had received 3 doses of OPV. The most important finding was that the affected children have at least one injection in the month prior to paralytic onset, classical provocative poliomyelitis.

Polio infection is known for very high proportion of subclinical infections. The percentage of the family members of the affected person, who carry polio virus, is known to be high. Provocative poliomyelitis occurs when such a person having the polio virus circulating in blood receives an injection, especially on the buttock. Reason is increased susceptibility of the relevant anterior horn cells resulting in settling of the circulating virus



there and consequential paralysis. Thus, occurrence of provocative poliomyelitis of this magnitude in U.P. is a good evidence of existence of many folds of children and others in the community who were infected with polio virus.

6. Originally the target date for eradication of polio was the year 2000. Now it is 2005. I wonder as to how this new date has been arrived at? What are the presumptions? Have we scientifically studied and determined the causes of failure to reach the target of 2000? As described earlier in this note, is it ignoring the basic epidemiological features of poliomyelitis? What eradication means? After smallpox has been eradicated, smallpox vaccination has been discontinued. There is no virus in nature, except some nations holding it with some (hidden) agenda.

7. Are we planning to stop OPV use if there is no new 'case of poliomyelitis' in India say for a period of two years after active surveillance? Certainly not even after WHO certifies Indian Polio Eradicated because we know that the virus will be there. As in the western world, with OPV use, there will

be cases of vaccine-associated poliomyelitis. Are we going to accept these as a price or as in the USA shift to the costly Salk inactivated vaccine?

8. Even if we continue to use OPV, the coverage has to be complete to maintain for ever. Otherwise, there is always high potential and danger of outbreaks of paralytic polio among the elder children. Who will bare the continuing cost and vaccine delivery system?

9. In brief, with the current strategies and pulse polio programme the target of 'eradicating' polio is unlikely to be achieved. High investment is unlikely to be cost-effective.

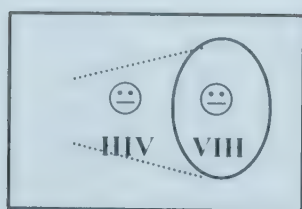
10. What is necessary? An independent evaluation and situation analysis by the experts are a must. Based on the findings, the policy and strategies should be reviewed. Uni-pronged attack with immunization alone will not serve the purpose. Public health measures should be comprehensive and integrated. Basic need is to revise and strengthen public health system and general health services.

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Note prepared for the Independent Commission on Health in India.



## 5. HIV & AIDS: Health Care vis-à-vis Mass Hysteria



**Introduction:** The best way to understand HIV is to see its mirror image VIH. Thus, this virus has become Very Very Important Human issue.

Unlike the old germs, HIV has come from the affluent nations of the West to the developing countries elsewhere. It has challenged human intelligence and has created pandemic of mass hysteria. It has attracted unprecedented quantum of money for its study, control, treatment and management of its damaging effects. It seems that cost of the panic it has created is more than the expenditure research, prevention and control, treatment of associated ailments and AIDS, etc. We have gone through ordeals of epidemics of such panics (and pandemic) with huge losses on economic and other counts, e.g., in 1994 when we had plague that never was, with looming importation of infections such as SARS and bird

flu, and recently with Chikungunya and Dengue fever. These panics have been generated largely by all kinds of media giving wrong and/or inappropriate information and depicting negative and gloomy picture. Authorities have also contributed by not being transparent and providing incomplete information.

There is no dispute about the seriousness of HIV & AIDS problems - socio-economic, biomedical, therapeutic, etc. Undoubtedly, care of HIV positive persons and cases of AIDS, and welfare of their family constitute major and complex problems. Nevertheless, it is necessary to understand basic natural history of HIV & AIDS, determinants of the mass hysteria created by media and propaganda, and the priorities in public health. Health care issues of HIV & AIDS and strategies should be considered on this backdrop. This paper attempts to present briefly the ground realities.

### *Know Your Enemy*

**HIV:** In 1983, while addressing scientists of the Zoological Survey of India, Kolkata, I said, "... The greatest challenge to human intelligence seems to have been provided by the *Treponema pallidum*, the germs of syphilis, by fully exploiting the sexual behaviour of man. For self-propagation, the organism has made human tissues its heaven. All attempts of man to dislodge it are unsuccessful. In fact, industrial and economic growth, and resultant socio-cultural changes in the societies have benefited the *Treponema*, perhaps more than the man himself".<sup>1</sup> I did not know that in the same year a superior challenger was discovered by the Pasteur Institute, Paris. This was christened later in USA as HIV in 1986. HIV has surpassed the *Treponema pallidum* in many ways. It is formidable and all-powerful. It sneaks into human defense system and breaks it down. Then it sits-pretty in human being for decades for other germs and ailments to attack. It evades clinical diagnosis for want of specific signs and symptoms. There is no cure for AIDS. The ground reality is that ecologically HIV is a shrewd enemy. It does not attack; it weakens body defenses. With promiscuous and polygamous sex behaviour, human beings continue to present themselves to HIV/AIDS and fall victims.

**Epidemiological uniqueness of HIV infection<sup>2</sup>:** HIV is a new virus group. Whenever a new

infection is introduced for the first time in a virgin population, in the initial phases it spreads very rapidly because the most of the people are vulnerable. Consequently, infection rate, severity of disease and mortality are high. Nevertheless, host-parasite interaction eventually matures, rate of transmission and virulence get reduced, the disease tends to become milder and less lethal. The time period taken for such a change depends on the environmental, host and agent factors or determinants. Every epidemic of infection invariably develops immunity in the infected persons whether they fall ill or not. Susceptible population gets either limited or even exhausted. As a result, the infecting agent is not able to find and easily reach a susceptible host in adequate numbers required to maintain its transmission and spread. Sooner or later, there is stabilizing or plateauing effect. The parasite becomes less pathogenic (Diagram I). At certain level of incidence, infection may become endemic or may even die out.

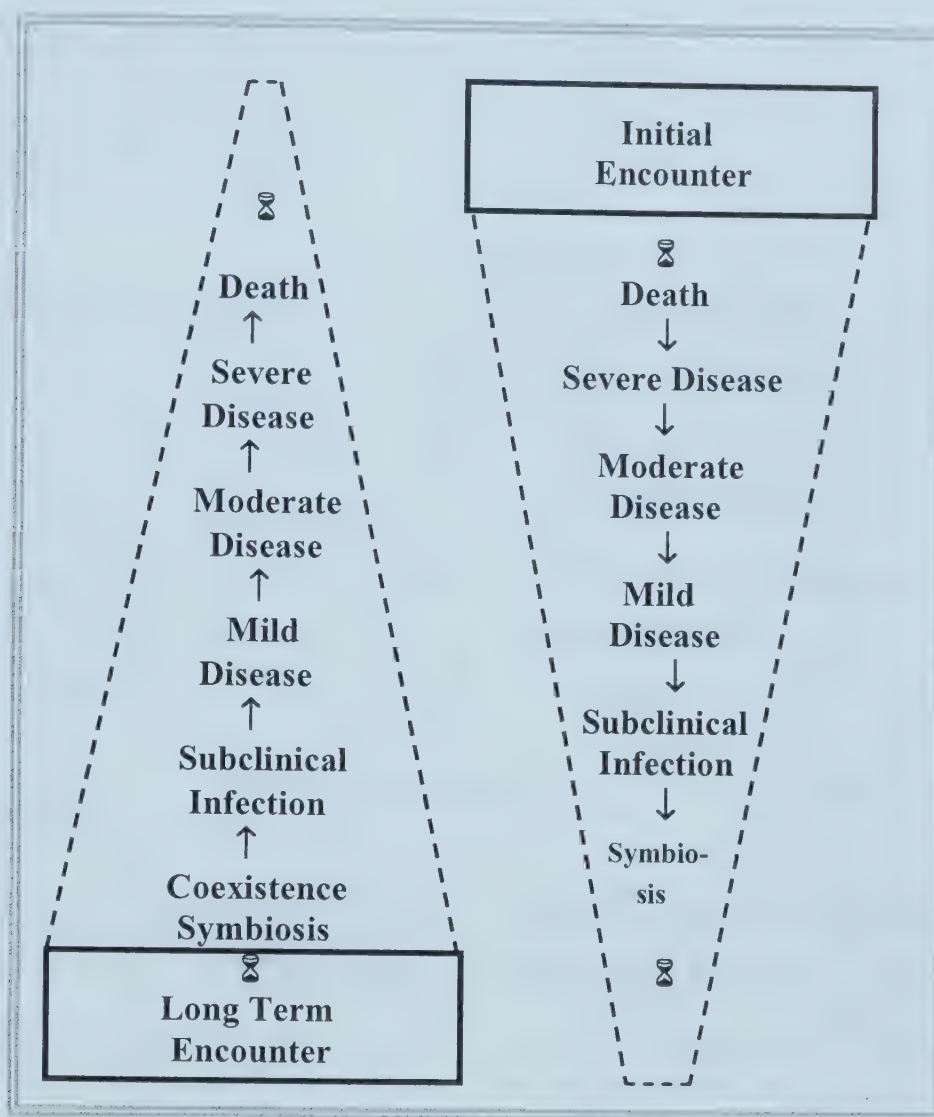
HIV infection is closely following this pattern. However, uniqueness HIV is that it attacks the immune system of the body and immune response is poor, if at all. What gets diminished or depleted in the case of HIV is the stock of susceptible promiscuous population. Secondly, due



to insistence on ensuring appropriate safety measures, transmission of HIV through blood transfusion, blood products, surgical procedures, use of contaminated syringes, etc., is progressively

lowered. Measures are being taken to prevent transmission of the virus from HIV positive pregnant women to the fetuses exposed to the risk of infection.

**Diagram I: Time Effect on Host-Parasite Interaction<sup>2</sup>**

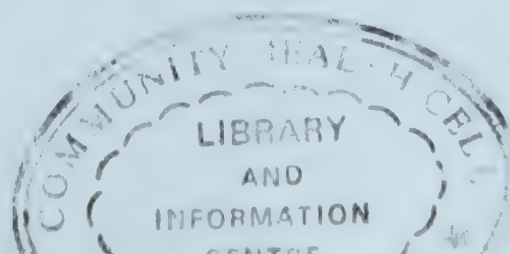


Note: Infection means entry and multiplication of germ in the body leading to some tissue damage to the host

In USA, first case of AIDS was detected in 1981. Infection spread rapidly in that country after 1986. This was despite the fact that use of condom was common and popular there. Then incidence of HIV showed plateauing and spread slowed down. HIV infection rate has gone down in North America and Europe where the infection was first introduced. In Africa where infection reached next, HIV is balancing itself and entering into a stabilizing phase of its natural history. In cities in Uganda, one of the hardest hit countries in the World, the number of HIV infected pregnant women is lower now than those ten years ago. In Thailand prevalence of HIV infection among the population at risk rose rapidly from 1989 but it has stabilized and now on decline. In Asia, the infection has reached last. But with passage of years developing countries are also registering a genuine drop in new HIV infections. The story in

India is the same. The first case of AIDS was detected in 1986. By 1998, HIV infection is getting stabilized and now it is on the decline. HIV infection is getting milder. Now only some of HIV positives develop AIDS within one year of infection. HIV positive person's average symptom-free life has increased from 10-11 years to 24 years.<sup>3</sup> HIV infected persons are clearly living longer.

Prevalence of HIV infection in general population depends on the size of interface - extent of promiscuity. Transmission is from interface to general population and never the other way. On the contrary, the transmission occurs both ways between commercial sex workers and interface, i.e., between A and B. One can expect high rate of infection in commercial workers. Incidence or occurrence of new HIV infections depends upon the number of fresh individuals joining the pool of



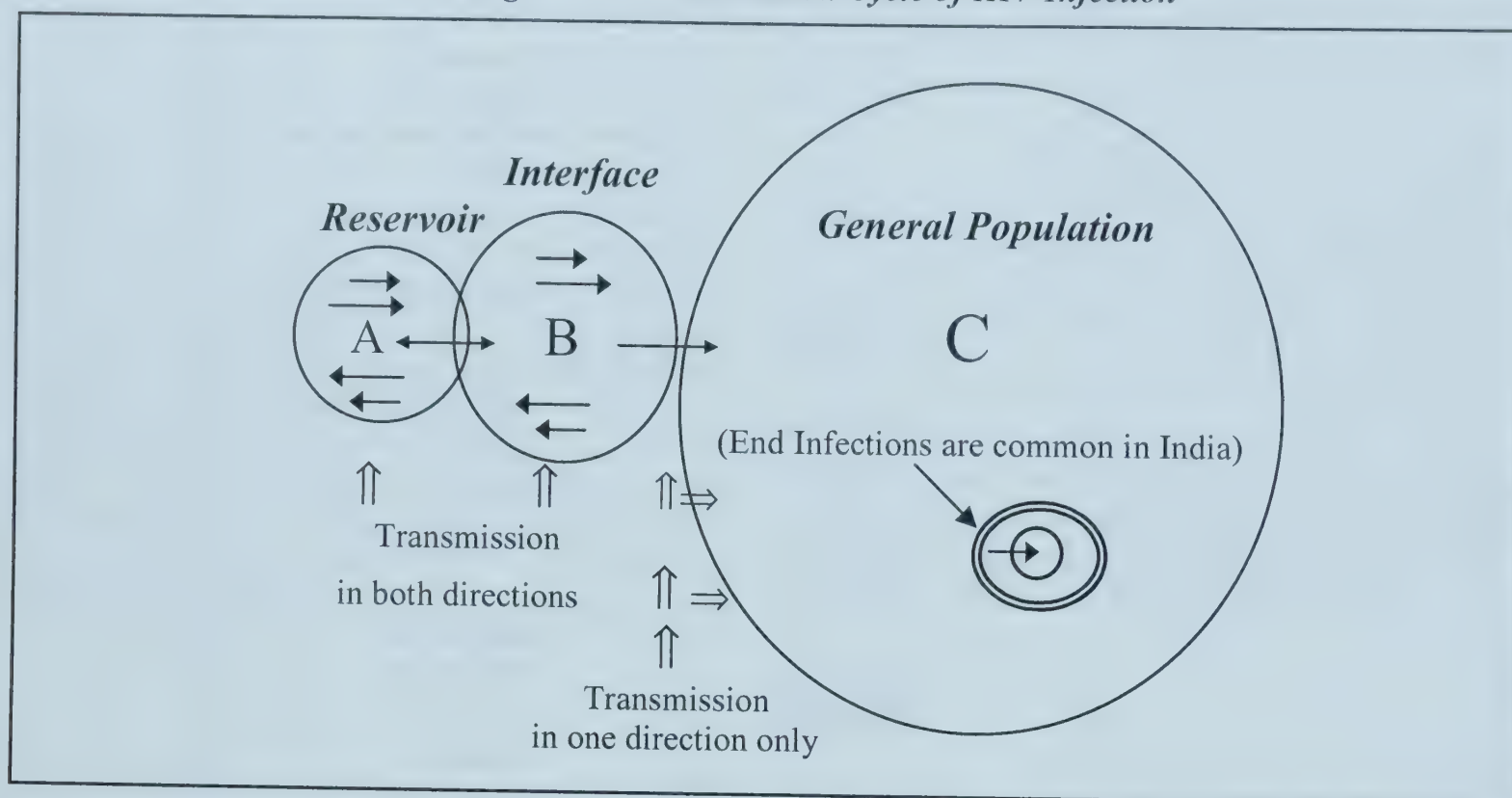


promiscuous persons. Prevalence or endemicity is determined by the average duration of HIV positivity, incidence of HIV infection and mortality of AIDS. In brief, it is only a matter of time that HIV infection will automatically get stabilized all over the world and its prevalence will depend on

the level of promiscuity and polygamy in the Country or given population. There is no question of zero HIV/AIDS; man shall have to live with HIV at all times to come.

Diagram II shows how HIV is transmitted.

**Diagram II: Transmission Cycle of HIV Infection<sup>2</sup>**



Note: A = **Seropositive - infected cases – Reservoir of infection** - all HIV positive individuals who are Promiscuous, e.g., most of commercial sex workers, call girls and their clients'  
 B = **Interface** – Pool of promiscuous persons  
 C = **General Population** – spouses of HIV positive persons, although HIV positive, will not spread infection if they are not promiscuous. These are examples of end-infection.

**Sex behaviour and AIDS:** International and trans-cultural differences in sex behaviour have been quantified in a paper<sup>4</sup> which was presented at the International Workshop on AIDS at Amsterdam, Netherlands. Various studies undertaken in the 1990s confirm quantitatively what has been qualitatively known, that sexual behaviour patterns differ markedly between societies and among subgroups within each society.<sup>4</sup> These data are given in Tables 1 and 2. Unfortunately, these epidemiologically significant differences in sex behaviour are not taken into account while estimating global/country projections and designing control measures. With such basic differences in sexual behaviour, common 'north-centric' control measures are neither universally applicable nor can be ever efficacious. These activities shall have to be country, region and community specific.

With its characteristic low rate of promiscuity and high end-infections in population, incidence of HIV infection in India is less than one

in 1,000 population. This is less than other venereal diseases (STDs) such as syphilis and gonorrhea. After all, our socio-cultural factors and sex behaviour are quite different than those in the countries in Europe, America, Africa and Asia. Countries mentioned in Table 1 have much higher incidence and prevalence rates than that of India. In India, promiscuity is still not acceptable to the traditional society; families are stable, family institution is stronger, divorces and remarriages are not common. In brief, our culture, value system and traditions are neither conducive nor do they encourage promiscuity. Secondly, measures taken to prevent the spread of HIV infection through blood transfusion and products, medical and allied occupation, use of contaminated syringes, and HIV positive pregnant women, etc., have progressively lowered HIV transmission through routes other than sex behaviour.

**Methods and efficiency of HIV Transmission:** Table 3 shows routes of transmission. Blood



transfusion is most effective mode although not common. Sexual intercourse is a poor route of spread, but is the commonest and important way in which HIV gets spread.

**Sexual intercourse and HIV infection:** As most of the HIV positive persons get infected through sexual intercourse, AIDS is essentially a venereal or sexually transmitted disease. However, this is one of the least efficient routes of transmission. Chance of getting infected after sex with HIV+ve partner is only 0.1 to 1.0 per cent, each time.

**Blood transfusion and HIV infection:** Transfusion of HIV positive blood is the most efficient mode of transmission of HIV, but the occurrence is low and declining. The reason is that blood transfusion is made safe from introducing hepatitis, syphilis, HIV and other infections,

through the preventive measures taken by blood-banks and hospitals. Legal provisions under the Drugs and Cosmetics Act are adequate to ensure safety of blood transfusion and blood products in the market.

**Injections & HIV infection:** Transmission of HIV through parenteral injections and surgical procedures with contaminated equipment has been grossly exaggerated. Both the probability and percentage of HIV infection transmitted by this route are very low. There is no direct evidence of needles as an important means of HIV transmission.<sup>7</sup> In any case, ensuring sterilization and aseptic techniques for all kinds of injections, infusions and surgical procedures, are all universal and time honoured preventive measures to be used always. Unfortunately, such precautions are not taken by the intravenous-drug addicts.

Table 1: Sexual Behaviour Norms and Heterosexual AIDS Transmission<sup>4</sup>

Country	Sex	Behaviour of Students and other Youth		AIDS Case Rate (per 100,000)	Per cent infected by heterosexual partners
		Sex outside Marriage, %	Predominant route		
India	M	20	Family members, neighbours, friends, CSWs, and fiancé	0. 09	73
	F	5- 10	Family members, neighbours, friends, and fiancé		
U.S.A.	M	70-75	Acquaintances, friends, long & short period relationship with average of two in previous year	13.81	13
	F	50-60			
Thailand	M	65	CSWs	30.13	89
	F				
Africa Sub-Saharan (Zimbabwe)	M	50	Friends, CHWs, acquaintances, short term living together	79.28 (Zimbabwe)	86
	F	3			99



Table 2: Behaviour Pattern of Cohabiting Married Persons<sup>4</sup>

Country	Norms and Definition of Marriage	(EMS) Extra-marital Sexual Experience	Per Cent Going to CSWs
India	Marriage almost universal and as a life long stable relationship with disapproval of other partners. Greater freedom for males.	Males: 15-30 % (Ever engaged in EMS in lifetime)  Females: 5-10 %	Males: 3-20 %
U.S.A.	Serial monogamy (high Pre-marital partner change + low marriage rate + high divorce rate). Only 58% adults married.	Males: 37 % (Married and unmarried adults reporting two or more sex partners in the past five years).  Females: 26 %	
Thailand	Marriage almost universal and as a life long stable relationship but with high extra-marital sexual activity.	Males: 77 % (Ever engaged in EMS in lifetime)	Males: 50 % (Going to CSW is often a group activity).
Africa Sub-Saharan	Multiple patterns – Lifelong stable monogamy + polygamy + short-term stable relationship (lasting for one year or likely to last for a year).	Males: 8-47 % (Multiple partners in previous one year).	

Table 3: HIV Transmission in India, 2004; and in SEA, 1993

Route of Transmission	Percentage of Total		Efficiency of Transmission	
	India <sup>6</sup>	SEA <sup>5</sup>		
Sexual Intercourse	85.35	80 - 90	0.1 - 1.0	%
Blood and its products	2.05	3 - 5	> 90	%
Injecting Drug Users	2.34	5 - 10	0.5 - 1.0	%
Perinatal	3.80	< 0.1	15 - 45	%
Other, Not known	6.46	< 0.1	< 0.5	%

NACO, GOI, Facts and Figures 2006: [http://www.nacooline.org/facts\\_reporting.htm](http://www.nacooline.org/facts_reporting.htm)

Mass Hysteria and Panic

For disease control, IEC (Information Education and Communication) programme is designed to inform the people so that they understand the disease, its origin, risk and consequences, etc. The objective is to enable people to understand take adequate steps for prevention, etc. Nevertheless, the information and statistics regarding HIV and AIDS given to the



people through news papers and other mass media, has been counter-productive. There is widespread impression that unless something is done drastically, millions of people will catch HIV infection and die within short time. People are scared because of gruesome image of HIV and AIDS created because of misinformation. HIV/AIDS clubbing gets interpreted as synonyms; and scientifically it is erroneous.<sup>8</sup> Socially it is disastrous because HIV+ve person takes it to mean AIDS.<sup>8</sup> He/she is worried and fears death. This fear has turned into panic because high estimates and projections which were erroneous and painted a grim picture of the future. There have been unscientific extrapolations based on limited surveys covering special red-light areas such as Kamathipura of Mumbai. ICMR predicted that every third pregnant woman in Mumbai would be HIV positive by 1995. This is proved to be false. It was projected that by 2000 AD, there would be five million HIV infected persons and over one million cases of AIDS in India.<sup>9</sup> In retrospect, official data proves that these figures were exorbitant and illogical. See year wise information in Tables 4 and 5.

NACO estimations are based on flawed presumptions (not validated), reduction of ANC sites (low risk) from 210 in 2003 to 124 in 2005, and using aggregated data from sentinel centres.

Table 4: Statistics on HIV (+), India by year

Year	Estimated Cumulative Prevalence in million (1986+)	Estimated Incidence for the Year
1986-92	1.600	0.233
1993	2.242	0.642
1994	3.249	1.007
1995	4.135	0.886
1996	4.653	0.518
1997	7.140	2.487
1998	7.496	0.356
	3.5 (revised)	-
1999	3.7 (revised)	0.200
	3.86	0.160
2000	3.97	0.110
2001	4.58	0.630
2002	5.10	0.520
2003	5.13	0.030
2004	5.21	0.080

This has resulted selection bias and grossly exaggerated estimates. To make it worse, NACO adds factor of 20% to calculated prevalence on presumption that there is underestimation due to poor reporting. Doubts about overestimates are real, e.g., 2004 estimates in million: NACO 5.2, UNAIDS 5.7 & Administrative Staff College, Hyderabad 3.2 to 3.5 9 (Indian Express, Pune, 14<sup>th</sup> December 2006). At the international level, estimates are grossly inaccurate. UNAID predicted<sup>10</sup> that in Africa and Asia by 2000 AD, one out of three urban adults would be infected, was erroneous. Similarly, forecast that South Africa will lose a quarter of the population to AIDS by 2000 AD<sup>11</sup> was untrue. Recent census data shows that the population in Africa has actually increased.

Panic is continued and unrelenting. Cumulative data and blown up estimates make public panicky and lead to mass hysteria in Governments, international organizations and donor agencies. Incidence rate which is a true indicator showing the trend of infection, morbidity and mortality of disease, and annual disaggregate are not published. Cumulative data soaring projections frighten people; and deliberately or inadvertently result in raised funding by magnanimous donations. Thus, it is clear that any of the available information and data fails to authenticate basis of public fear and pandemic of mass hysteria.

Table 5: Statistics on AIDS in India, year-wise

Year	Estimated Cases of AIDS	Reported Cases of AIDS <sup>10</sup>	New Cases of AIDS in the year
1986-92		523	-
1993		659	136
1994		1017	358
1995		2108	1091
1996		3161	1053
1997		5145	1984
1998		6690	1545
1999		7012	332
2006 (August)	> 1 million	1,24,996	



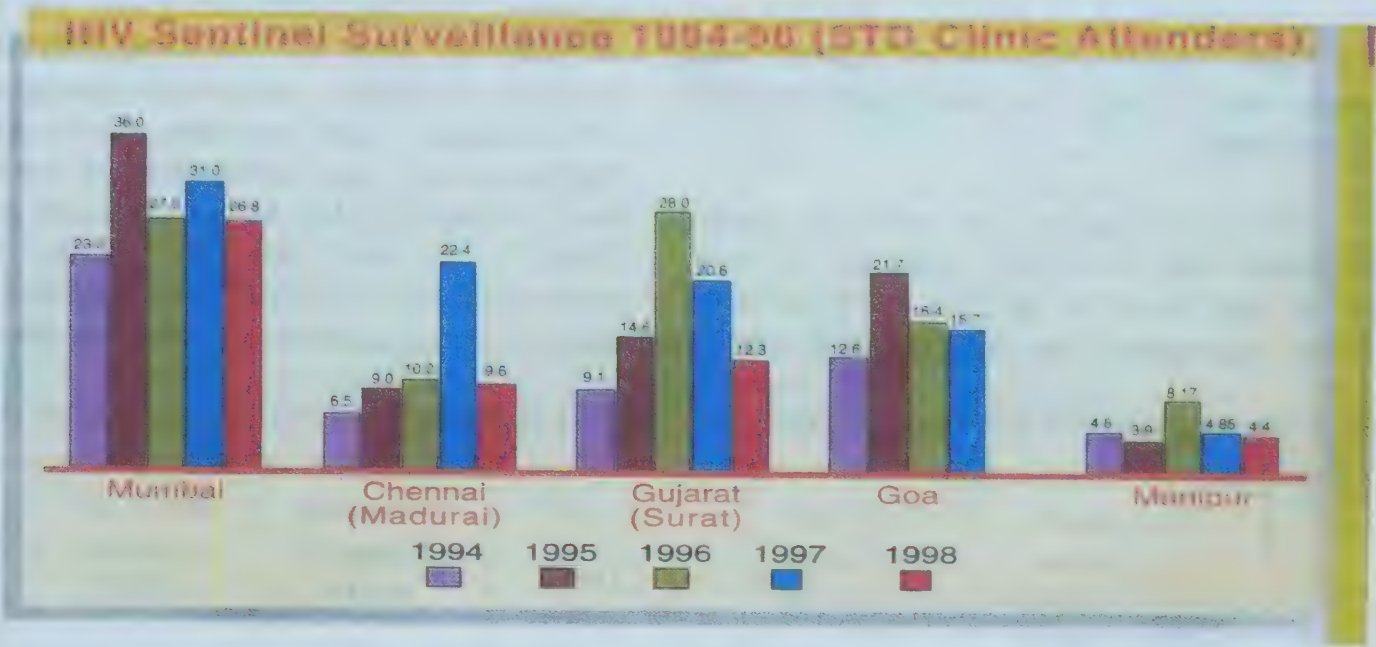
In India, is HIV infection spreading, stabilizing or declining? Answer to this question is most strategic for policy and determining interventions. Epidemiologically, this can be best answered by estimating incidence of HIV infection. However, size of representative sample of the population required to have reliable estimate of incidence rate, will be too large and this was considered not feasible. There is, however, dependable tool in epidemiology to serve the purpose.

Therefore, for determining the trend of HIV infection, 55 sentinel surveillance centres/sites were established in India in 1994. By 2005 the number of various types of surveillance sites has gone up 703. STD patients, women attending antenatal clinic, intravenous drug-users, and other groups are screened periodically on sampling basis. Data from different sentinel sites/centres can

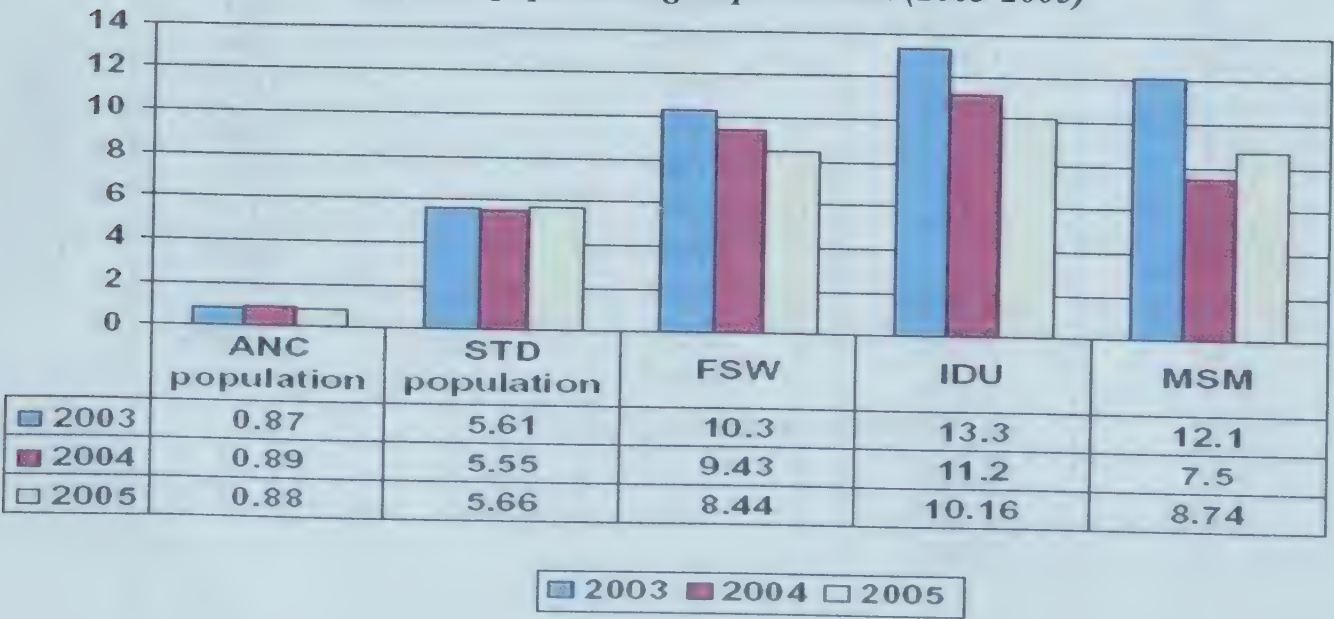
neither be added nor extrapolated. Unfortunately, NACO regularly combines and uses these data for projections and estimating cumulative prevalence in absolute numbers. NACO has ignores that epidemiological purpose of sentinel surveillance centres is primarily to know the trend of HIV infection, whether it is rising, constant or declining.

Analysis of data from sentinel surveillance centres show that since 1998, HIV infection is stabilizing in India and shows overall declining trend at majority of the Sentinel Centres.<sup>12</sup> There is wide variation between these centres, there is no evidence that HIV infection is on the rise. See Graphs 1 and 2. The number of new infections was 0.16 million in 2000, and was reduced to 0.11 million in 2001.<sup>13</sup> Apparently size of the susceptible the promiscuous population is progressively getting reduced.

Graph 1: Year-wise trend in HIV prevalence from 1994 to 1998<sup>12</sup>



Graph 2: Year-wise Trend in HIV Prevalence percentage among different population groups in India (2003-2005)<sup>13</sup>





While Graph 1<sup>12</sup> shows great inter-site variation, on the whole the trend of HIV infection is not on the rise as published data conveys. Recent data from the sentinel sites of different population groups for 2003 to 2005 confirm that the trend continues to decline.<sup>13</sup> See Graph 2. These data from surveillance centres reveal that the trend of HIV infection has either remained stationary or is tending to decline since 1996. Rami Chhabra<sup>14</sup> reports, “Contrary to the international hype – on the exploding HIV infection Indian surveillance trends show it as stationary or declining”. Table 6 shows

that HIV prevalence among FSW population in most of the States is on decline. This reduction among sex workers suggests much larger lowering of infection in population at large. Such decline was also recorded at STD clinics in Mumbai and Satara: 15,285 cases in 1996 and only 7,488 in year 2000<sup>12</sup>. By the way, other STDs also show decline: 3,90,573 STD cases were reported in India in 2000 and only 26,183 in first three months of 2001<sup>12</sup>. State-to-State and site-to-site variations do exist, but there is no justification for alarm and hysteria, no cause for panic and irrational interventions.

**Table 6: Comparative year-wise and State-wise HIV Prevalence among FSW population (2003-2005 )<sup>13</sup>**

		2003	2004	2005
	State	% Positive	% Positive	% Positive
1	Andhra Pradesh	20.00	16.97	12.97
2	Karnataka	14.40	21.60	18.39
3	Maharashtra	54.29	41.69	23.62
4	Manipur	12.80	12.40	11.40
5	Tamil Nadu	8.80	4.00	5.49
6	Delhi	1.61	4.60	3.15
7	Gujarat	-	9.20	8.13
8	A & N Islands	-	0.50	0.40
9	Bihar	4.80	0.20	2.24
10	Chandigarh	0.60	0.80	0.67
11	Himachal Pradesh	0.00	0.80	0.00
12	Orisa	-	5.18	2.60
13	Pondicherry	-	1.94	0.28
14	Uttar Pradesh	6.60	8.00	3.50
15	West Bengal	6.47	4.11	6.80
16	Rajasthan	3.92	2.31	3.72
17	Jharkhand	-	0.00	0.80
18	Haryana	-	0.00	2.00
19	Assam	0.00	0.00	0.76
20	Mizoram	-	13.69	14.00
21	Nagaland	4.40	4.44	10.80

**AIDS Deaths:** People are given very wrong impression about AIDS deaths. Cumulative reported deaths due to AIDS are 9,215 since 1993. See Table 7. Some claim gross under-reporting and estimate that 2.0 to 2.5 million adults have died of AIDS in India in last 15 years. If millions of people have died due to AIDS and even if the cause is not reported as AIDS, these deaths are certainly

reflected in the crude death rate (CDR). Sample registration data (SRS) shows a continuous declining trend, despite improvement in the death notification and registration. There is *progressive decline* in CDR from 25.1 in 1951 to 9.2 in 1993, to 8.7 in 1999 and to 7.5 in 2004. Low death rates indicate the absence of large scale AID deaths.<sup>12</sup>

**Table 7: Reported AIDS Deaths in India, 1993-2005**

Year	1993-99	2000	2001	2002	2003	2004	2005	Total
Number of Deaths	1876	471	1039	1265	1620	1170	1094	9215

Source: Personal communication, Rami Chhabra, Request to NACO for information under RTI Act, 2005, Statement Indicating Year-wise/State-wise Reported Number of Deaths due to AIDS.



### *Understand the People and Learn from their Responses*

Social action in response to a situation is determined by several factors.<sup>15</sup> In a traditional society, reaction of the people may be quite different than that of the European or North American people. On the eve of Diwali a few years back, there was telling news that the residents of Hivale Bazaar village, 16 km from Ahmednagar town, Pune District, Maharashtra, unanimously resolved to make HIV testing mandatory for every prospective bride or bridegroom coming from outside their village before any marriage takes place.<sup>16</sup> After Gram Sabha endorsement, this came into force. In the following years, some villages in Tamil Nadu responded in the same way. This surprising reaction of the villagers is worthy to take note of because of its social significance, relevance to the 'value system', bearing on family institution and both positive and negative implications in prevention of HIV infection. This is akin to almost instinctive reflex action, on seeing a snake, either to kill it or run away. It is fear of death & not stigma. Innovatively, the villagers have taken HIV test to mean as a test for virginity and/or promiscuity. In an elite culture, Osho International Foundation, Koregaon Park, Pune, does not allow any visitor to enter Asram unless HIV Test Certificate (negative) is shown. Authorities of the Armed Forces have made HIV testing obligatory for all recruits. Government of Goa, has passed resolution recommending premarital HIV testing. While the Government of India regulations do not permit HIV testing without informed consent, all patients are regularly tested for HIV before any surgical operation. Can we call these responses as mere social stigma? No, this is much deeply rooted.

Ours is a traditional society in which extramarital sexual relations and promiscuity are considered morally wrong and are frowned at. It is worthy to note that public reaction to other venereal diseases (popularly called गुप्तरोग) such as syphilis and gonorrhea, is much benign; in sharp contrast, response to HIV or AIDS is vicious & determined. Recently, in Pune some youths have formed clubs for "safe-marriage". The eligible members are those who have taken pledge that they shall not

marry unless they and their 'would be spouse' get tested for HIV. What prompted our people and youth to act this way? Obviously, they thought that the risk has to be avoided by keeping the deadly virus and disease away. They fell back on moral and cultural values, and family institution which is ancient social instrument to regulate sexual behaviour of man.

Under the influence of globalization and according to agenda of foreign funding agencies, society and government expected to have responsibility to support these (HIV positives and AIDS patients) "unfortunate people" to fight back, etc. Before debating such issues, it is worthwhile for oneself to answer some questions: (a) Will I personally marry a person who is HIV positive? (b) Will I marry my children without getting tested the prospective son-in-law or daughter-in-law? (c) Will Director of Health Service allow HIV positive surgeon to operate in public hospital? (d) Will any private surgeon do surgery on a patient without getting him/her tested for HIV?

European, North American and people from industrialized and developed countries have different culture and values. Promiscuity and polygamy are common and have social approval. Naturally, concerns of the modern societies and international bodies are different. Very nature of their problems is different. They have focused on sympathy to HIV infected persons and AIDS affected patients. They have linked the issue even to 'human rights'. Support for the cause of HIV & AIDS is sought by arranging gala meetings in five-star hotels. Funds are available in billions of US dollars. Apparently, their priority is the welfare of AIDS patients. We cannot do this and leave real and bigger priority issues like diarrhoea and pneumonia of children under five years, that kill millions of children every year; communicable diseases such as tuberculosis, sanitary disposal of human excreta, safe and adequate potable water for villagers and slum dwellers, poverty, nutrition security for the poor, gainful work for the unemployed, etc.

### *Societal Aspects of Stigma*

Dictionary meaning of stigma is 'a mark of shame or discredit'. Panic is a sudden unreasoning and overpowering fright. Fear means anxiety or an unpleasant often strong emotion

caused by anticipation or awareness of danger. Phobia means an inexplicable and illogical fear of something. In light of this, it is unreasonable to label public reaction to HIV infection and/or AIDS



as stigma. In a traditional society, venereal disease is considered shameful because it is against morality and cultural values. Thus, having syphilis or promiscuous sexual behaviour carries stigma. The case of HIV and AIDS is entirely different. Our society tends to stigmatize and frowns at venereal diseases (गुप्तरोग) and extramarital sexual relations. Public reaction to syphilis and gonorrhea is benign, whereas in sharp contrast response to HIV & AIDS is vicious and determined. This state of affairs is due to fear and phobia created exclusively by mass media by publishing cumulative prevalence data & soaring projections repeatedly. People are frightened of death. Things have changed considerably over time.

In the past, people feared tuberculosis because of severe emaciation and certain death. They were scared of leprosy because of disfigurement of face and deformities of hands, etc. However, availability of modern treatment has made relief and cure of these diseases very obvious for last two to three decades. Fear is disappearing, so also the public reaction. Mahatma Gandhi was a great visionary. When he was invited to inaugurate a new leprosy colony, he declined saying that he will be happy to attend its closure. Tuberculosis sanatoria have been closed and leprosy colonies are on the way out. This is not the case as regard to cancer which is still feared by the people. Now added to cancer is HIV and AIDS.

### *Prevention and Control*

**1. Lack of Integration:** Recognizing setbacks of the vertical programmes for disease control, National Health Policy declares discontinuation of such programmes and recommends integration. In defiance of the national policy we have not only a vertical programme for the control of HIV/AIDS, but also have National AIDS Control Organization (NACO) to manage it independently. As explained earlier, AIDS is essentially a venereal or sexually transmitted disease. Therefore, for sustainability and effectiveness, prevention and control of HIV & AIDS should be an integral part of National STD Control Programme. National STD Control Programme should be reviewed and strengthened because at present it is limited to treatment at hospital-based STD clinics and has no component of prevention and control.

**2. Ad hoc control and preventive measures:** The current control measures for HIV & AIDS are planned on *ad hoc* basis, strategies and ideas originating from developing countries. As pointed out earlier, these widely differ socio-culturally from India. As a secondary preventive measure, correct and regular use of good quality condom may reduce, in an individual, the risk of HIV infection by a maximum of 85% only. *However, promotion of use of condom as a public health measure to control spread of infection is as miscalculated as advocating the use of gas-mask for prevention of air-pollution.* Any way the use of condom is not foolproof. High risk approach with concentration on sex workers, truck drivers, intravenous drug users, etc., will not lower incidence rate. Further, spread of infection through call-girls and promiscuity among affluent section of the society has not been addressed. Studies have shown that reduction of HIV infection in Thailand is due to

significant decline in promiscuous behaviour, and not due to increased use of condoms. There is urgent need to change the current strategies.

**3. Institute Primary Public Health Measures for Prevention and Control:** Curative treatment of communicable disease may lower duration of illness, and reduce the risk of spread & fatality (not in HIV). This may help to lower prevalence. However, use of antibiotics and vaccines, fails to reduce occurrence or incidence of disease simply because its determinants remain unaffected.<sup>12</sup> The multiple factors such as behaviour are not tackled and continue to operate.<sup>12</sup>

In the long run, prevention should address the basic issues such as patterns of sex behaviour, promiscuity and polygamy prevalent in the community. Only then there will be effective and sustained control of venereal diseases. In this regard, a slogan, "*Be Hanuman before marriage and Ram after marriage*"<sup>17</sup> is explicit and understandable by people. "Behaviour change could be initiated only if the present stereotype of masculinity is drastically changed. In today's times the most prominent aspect of male sexual script is 'sexual conquest'. It would be imperative to rewrite masculinity within the changed sexual script that would subtly enforce gender equity. We may have to fall back heavily on mythology, philosophy and religious scriptures to do so. By taking concrete examples from the texts, it would certainly be possible to create awareness about the newer definitions of masculinity and femininity which in turn would transform the behavioural component of male sexuality into something that would curtail promiscuous sexual behaviour and promote sexual fidelity."<sup>18</sup>



So long as man remains polygamist and sexual promiscuity continues, STDs cannot be fully controlled. Obviously, HIV & AIDS will continue to affect man. Man shall have to live with HIV. Choice is at what level? This will depend on the extent of promiscuity. People should not be misinformed. They must be clearly and explicitly told and know that if one has a single sexual partner, preferably spouse who is faithful, the risk of contacting venereal infection such as of HIV is practically zero.

Family continues to be a strong social institution in India. This time-tested, culture and religion supported mechanism is designed to control and regulate sexual behaviour through system of linking together love, sex and family life. This fact should be a central theme for mass drive for health education. *Bramhacharya* is the spiritual and cultural tradition in India, is a period of up to about twentieth year of life when one strictly observes abstinence before marriage. Promotion of youth clubs, on Pune style, will be positive step. *Grahashthashram* advocates monogamy after marriage & raising family. In USA, Government's latest drive is for abstinence, advocacy for no sex before and outside marriage, 'sex can wait', etc.<sup>19</sup> This is being administered for school children. The objective is to prevent teenage pregnancies and sexually transmitted infections. Abstinence may be a significant cause of reduction in HIV infection in Uganda. (Times of India 20th Jan. 2003). In light of these examples, why not promote our own traditions and discard promoting use of condom – socially interpreted as encouraging promiscuity.

Effective counselling & service to general public, the promiscuous, persons at risk of exposure to venereal infections, and the adolescent boys and girls, is the effective long-term measure. This will favourably influence sex behaviour and control the spread of sexually transmitted infections like of HIV. There are no short-cuts.

**4. Vaccination against HIV:** This is still under trial. The task of having effective and affordable vaccine is demanding. Major issues are: (a) emergence of new strains of virus, (b) apart from sex-workers, to whom vaccine can be advocated, and (c) will people volunteer and get immunized? With our dismal record of community participation,

it is difficult to predict the future of either preventive or therapeutic use of vaccines against HIV & AIDS.

#### **5. Care of HIV infected persons and AID Cases:**

Prevalence of an ailment, by itself, cannot decide priority in public health. It tells us volume of services likely to be demanded and helps to prepare for current and future delivery of services. Effective care will include the following:

- (a) Measures should be taken to prevent dehabilitation of HIV(+)s and AIDS patients from their family and employment. In view of long and almost normal life, intermarriages of HIV positive persons should be encouraged. If such couples adopt HIV positive children, there cannot be better way for preventing many social problems vis-à-vis HIV infection.
- (b) It is important to provide counselling services to ensure that prostitutes and HIV(+)s take adequate precautions and do not spread infection to others.
- (c) Most of HIV(+) persons will need treatment for inter-current ailments. Many HIV(+) persons may not even know about their infection. The treatment can be taken care of under the general health care services as is being done at present in case of other case of venereal diseases. No special arrangements are required except educating medical profession that such a care of HIV(+) persons is safe, except surgical procedures. Some symptom-free HIV(+) persons will require and may demand antiretroviral therapy. Facilities should be made available. There is no need to provide drugs free of cost.
- (d) AIDS cases will continue to emerge and suffer. It is essential to provide for free services for prompt and correct diagnosis. AIDS patients should be informed that there no cure and antiviral treatment is essentially palliative. They should also know about possibility of development of drug resistance and need to change therapy even after six months. Facilities for antiretroviral therapy to all cases should be made available. There is no need to provide drugs free of cost.
- (e) Nevertheless, there are unfortunate sufferers, viz. faithful wife of HIV(+) husband, baby born to HIV(+) mother and recipients of transfusion of HIV(+) blood or blood products. They should be provided free antiretroviral therapy and adequate compensation.

### **Priorities in Health Care**

Prioritization in public health practice is based on (a) extent of mortality and morbidity of the disease/ailment, (b) economic and social loss,

and (c) availability of cost-effective and feasible preventive and control measures. The high priority accorded to HIV & AIDS is, therefore, cannot be



justified on these criteria. If the fundamental malady is poverty with at least 15 to 20 million poor people, this gets highest priority. Reality is that tuberculosis, diarrhoea and acute respiratory infections in children below five years, etc., are neglected when they cause very high morbidity and mortality, economic loss, and against which control measures are well known and effective. National

priority has to be reality-based and cannot be set on agenda of international funding agencies.

Statistics in tables 6 & 7 show ground realities and indicate the main priorities. Note the comparison. Other problems are poor environmental health, ineffective general health service, moribund public health system & limited resources.

**Table 6:** *Some deaths by cause, India, 1998*<sup>16</sup>

Disease	Number of Deaths per year
Cardiovascular diseases	2.82 million
Cancer	0.65 million
Diabetes	0.10 million
Respiratory infections	0.99 million
Diarrhoeal diseases	0.71 million
Injuries	0.92 million
AIDS (1993-2005)	9,215 in 15 years

**Table 7:** *Comparative Data on HIV/AIDS and Tuberculosis*<sup>16</sup>

HIV/AIDS	Tuberculosis
1. HIV positives: 1,24,995, 1986-August 2006. Estimated: 5.2 million in 2005. 2. Reported cases of AIDS: 1,24,995 in 20 years. 3. Reported deaths due to AIDS in 15 years: 9,215, (estimated 2.5 million) 4. No curative treatment available. Palliative treatment is unaffordable for most patients. 5. Except controlling promiscuity, no other effective control measure.	1. Tuberculin positive rate: 85% among persons > 25 years of age. 2. Cases of tuberculosis: 15 million. 1.8 million new cases every year. 3. Number of deaths: 0.5 to 0.7 million every year. 7,31,952 in 2004. 4. Curative treatment is effective & cheap. Duration is 1 to 1.5 year in most cases. 5. Available control measures are effective.

Note: Some data of tables 6 and 7 are updated from Health Information of India, 2004, Government of India.

***Economics of HIV/AIDS***

Economic of health improve only in event of crisis, and on political and commercial interests. Some of the diseases which attracted huge funding in the past include malaria and smallpox. The latest beneficiaries are poliomyelitis, AIDS and the HIV infection responsible for it. In consideration of the real priorities of health care services in India, quantum the allocation of funds is inversely proportional to the priorities.

As regards HIV & AIDS, their clubbing together, cumulative data and soaring projections have not only frighten people, but has also created mass hysteria. This has deliberately or inadvertently resulted in magnanimous funding by International Agencies and philanthropist donors.

Topsy-turvy funding of disease control programmes in India is evident from the budgetary provisions for 2006-07 of Government of India: (a) Control of Tuberculosis – Rs. 184 crore, (b) Expanded Programme of Immunization – Rs. 327 Crore, and (c) Polio Eradication – Rs. 1,007 Crore. HIV & AIDS has outlay of Rs. 533.5 crore for the year 2005-06. Total investment in National AIDS Control Programme (NACP-2) was about US\$ 499 million. There will be higher investment under NACP-3 which is being finalized. Major funding of US\$ 200 million loan will be from the World Bank. In addition, there are other donors, e.g., Bill and Melinda Gates Foundation, USA, has committed US \$ 200 million initially for five years. This will be for 65 districts in four States.



Break-up of head-wise expenditures is not available. Effects of Globalization are reflected in utilization of funds. Significantly high percentage of funds goes for non-operative expenditures such as on administration. In order to release international and other external funds quickly, State and District level Societies (Government sponsored 'NGOs') have been established. Expenditures on special NGOs add to non-operative expenditures. There is hardly any capital expenditures in lay out.

Because of the nature of HIV infection and non-availability of curative treatment of AIDS, most of the operative expenditures are unfruitful. IEC drive is aimed to brine about appropriate change in sex behaviour of the people. The task is assigned to several NGOs and they receive liberal support. Impact of NGOs health education programmes has not been evaluated, but is not apparent. Provision for antiretroviral therapy is Rs.

20 crores only. Treatment is free. It is palliative and has no effect on the spread of HIV infection. In brief, expenditures on HIV & AIDS are futile, not cost-effective as far as HIV control efforts.

Lastly, there is element of hidden funding. Infrastructure of the Health Services is used in one way or another for HIV & AIDS control programme. Most of the HIV(+) persons are not aware of their infection. Naturally, for their inter-current ailments they use the Governmental or private medical services. It is said that HIV & AIDS have benefited the unaffected more than the affected. This is because the providers such as salaried staff seize the bulk of funds by way of non-productive expenditures such as on administrative set-up. Similarly, manufactures and suppliers of high quality condoms, contracted NGOs, and others have their share.

### *Conclusion and Recommendations*

The ground realities of HIV infection are quite different than the ones generally perceived by the authorities, public or as the public is made to believe. Our national health policies should be rationalized and adopt a wholesome rather than narrow approaches and strategies for health development and social welfare. On the basis of this situation presented in this paper, following recommendations emerge.

In its mirror image HIV reflexes as Very Important Human issue. Therefore, it is necessary to make HIV control as people's movement and initiative.<sup>12</sup> This requires a separate paper and the steps required for this approach are deliberated in my paper entitled "Review of National HIV & AIDS control programme in India with a view to make it community oriented more effective & sustainable".<sup>12</sup> It is needless to remind that the strategies should be community specific. Below are some of the interventions to start the ball rolling:

**1. Measures for abatement of panic and mass hysteria:** Panic has been generated because of faulty propaganda of HIV & AIDS. People are mislead and frightened by quoting the rising prevalence in absolute numbers. People are blinded. This kind of publicity should stop and steps are taken set the fear, etc., to rest. People are confusion with phrases such as 'HIV/AIDS including STDs' and 'HIV/AIDS & STDs'. Promoting the use of condom for so-called 'safe-sex' is culturally illogical and scientifically untenable. This strategy and approach should be discontinued. Common people are more familiar with the old term venereal diseases and गुप्तरोग (*Gupta Rog*). Tell people that HIV & AIDS is

गुप्तरोग. If the public is told the truth, panic will come to an end. People will behave rationally. We have to publish appropriate figures and tell people that the risk/danger of HIV infection is getting less and less. Annual report of the Ministry of Health & Family Welfare for the year 2005, states, "estimates of number of "HIV infections from 1998 to 2004 indicate that there has been no dramatic upsurge in the spread of HIV infection across the country". There is no reason for panic. It is best to work with the people, understand them, listen to them and learn from them.

**2. Integration of HIV & AIDS control** as an integral part of venereal disease (sexually transmitted infections) control programme. Effective and appropriate counselling is the only effective long-term measure to favourably influence the sex behaviour and control the spread of sexually transmitted infections.

**3. Curbing promiscuity:** There is urgent need for strategy to curb promiscuity.<sup>14</sup> Need to drastically change stereotype of masculinity and a way to do so have been indicated in this paper. This approach is relevant to developed countries. "One behaviour that most fosters AIDS is sexual promiscuity. Education aimed at re-dignifying human sexuality to the ancient values of lasting fidelity to one's partner in life is the absolute remedy, but sadly the more difficult and therefore never mentioned one".<sup>20</sup> We in India, have to fight for such education any way and promote sexual fidelity.<sup>18</sup> Ancient values should be safe guarded and people should be helped any way. This is the primary preventive measure and a right strategy.



#### 4. Measures to Educate adolescents and people:

People should know that HIV infection can be easily prevented: (a) if husband and wife are faithful to each other (monogamy), (b) by avoiding extra-marital sexual intercourse, and sex with prostitutes (CSW) or call-girls, and (c) by observing abstinence before marriage. It is essential to have long-term and sustained information and motivation programmes for the adolescents, both school going and drop-outs. Aim is to develop appropriate mind-set and behaviour so that they adopt healthy lifestyles and family-life.

#### 5. Measures to Encourage and promote establishment of youth clubs for "safe-marriage".

The eligible members shall be those who have taken oath that they shall not marry unless they and their 'would be spouse' get themselves tested for HIV. Promote *Bramhacharya* and marriage-based "safe sex"

behaviour through school and non-formal education on moral hygiene to the youth and vulnerable.

6. **Humanitarian ground:** Provide free treatment and compensation to (a) faithful wife of HIV positive husband, (b) baby born to a HIV positive mother, and (c) person getting HIV infection due to HIV positive blood transfusion or blood product. They get infected for no fault on their part.

7. **International/external funding:** Last but most important, is to use such funds exclusively for rejuvenating and strengthening public health system in India. There is urgent need to have a team of competent and experienced public health specialists as leaders and top managers. With this single step most of the health problems in India can be solved and public health system will get better and better.

### Conclusion

I quote Dr. Pavri <sup>21</sup> with a slight change, "In a country where people die of various consequences of a major pestilence -- no, not AIDS but extreme poverty, one can only join the great Karl Meyer in his dreams for preventive medicine: Preventive medicine dreams of a time when the welfare of the people shall be our highest concern; when humanity and mercy shall replace greed and selfishness; and it dreams that all these things will be accomplished through the wisdom of man. Preventive medicine dreams of these things, not with the hope that we, individually, may participate in them but with the joy that we may aid in their coming to those who shall live after us. When young men have vision the dreams of old men come true." I end by saying that such a vision is on the horizon. Recently, a young couple from Kalewadi in Pune has set an example to emulate and follow.<sup>22</sup>

In February 2005, soon after funeral of her husband, 20-year-old and 12<sup>th</sup>-standard-failed Rekha heard that her husband died of AIDS. Her family and relatives boycotted her. She feared death and decided to end her life rather than to die of AIDS. Advised to undergo HIV test, she did it. She felt hell waiting for 4 days, but was reported negative. She could not describe her joy. She remembered that her husband did not touch her for two years telling that he was not well. When her brother-in-law bet her, she doused herself with kerosene. When she was about to put fire and commit suicide, her neighbour Shivaji not only prevented it to save her, but also proposed and married her. Now the couple have seven-month-old daughter. This middle-class family is happy and Shivaji's father is proud of his son.<sup>22</sup>

### References

1. Deodhar, N.S., Host as an Environment, Proc. Symp. Zool. Surv. India, Calcutta, 1983, i-vi.
2. Key-note Address, Symposium on HIV/AIDS – The Ground Realities, the School of Health Sciences, University of Pune, 8th July 2000, "*Interface of Health and Society*".
3. News, HIV positive person's average symptom-free life has increased from 10-11 years to 24 years, Hindustan Times, 12<sup>th</sup> November 2006.
4. Ritu Priya, Minimizing Suffering: A Public Health Perspective on AIDS Control in India, Paper presented at International Workshop on AIDS Prevention and Care for People Affected by AIDS in India, IDPAD, Royal Tropical Institute, Amsterdam.
5. Hubley, J., Chawdhury, S., and Chandramouli, V., The AIDS, Handbook, A Guide to the Understanding of AIDS and HIV, Focus Books, Popular Prakashan, Mumbai, 1995, page 57.
6. NACO, Country Scenario, 1997-98, Ministry of Health and Family Welfare, Govt. of India : 15, 79 etc.
7. AIDS - A Public Health Crisis, Population Reports, July-Aug. 1986, XIV (3) :194-205.
8. Personal communication, Mutatkar. RK, Founder, Maharashtra Association of Anthropological Sciences, Pune-7.
9. Sehgal, P.N., Towards Effective Policies and Strategies for Control of HIV/AIDS, World AIDS Day, Health for the Million, Nov.-Dec. 1996, 22 (6) :3-7.
10. Editorial, AIDS : Global Response, Science, 28th June 1996, 272 : 1855.
11. Column, South Africa, drugs and AIDS, Frontline, May 12, 2000, pp112-114.
12. Review of National HIV/AIDS Control Programme with a view to Make it Community Oriented, More Effective and Sustainable, Workshop on 'AIDS prevention and care for people affected by AIDS in India, Indo-Dutch Programme on Alternatives in Development, Royal Tropical Institute, Amsterdam, 28-29 June 2001. Journal of Public Health Policy, 24(2)159-180,2003.
13. HIV/AIDS Epidemiological Surveillance and Estimation Report for the year 2005, pp 11, NACO, Ministry of Health and Family Welfare, Govt. of India, April 2006, New Delhi.



14. Rami Chhabra, HIV infections in India, Need for Strategy to Curb Promiscuity, Opinion, Tribune, New Delhi, April 15, 2006.
15. Social Action in the Field of Health Care, South-East Asia Seminar on Social Dimensions of Health Care and Health Policy, NHHFW, New Delhi, 16-19 March 1992. and Changing Strategies and Challenges in Communication in Health Development in India, Chapter 2.3, Contemporary Public Health, Ed. Gupta, J.P., and Sood, A.K., Apothecaries Foundation, New Delhi, May 2005.
16. Commonsense and the New Venereal Disease called HIV/AIDS, Round Table on Reflections on Responses to HIV/AIDS, Perspectives from South Asia, Voluntary Health Association of India, 22-24 January 2003, New Delhi, Health For Millions, 28 (6) and 29 (1):21-25, February-May 2003.
17. Personal communication, Panse. GA, formerly Additional Director of Health Services, Government of Maharashtra, Pune.
18. Personal Communication, Apte. Hemant, Reader, Department of Anthropology, University of Pune.
19. House of Representatives, Department of Labor, Health and Human Services and Education, And Related Agencies Appropriation Act, 2002, Library of Congress, (component of Title V).
20. Pay, Derek C., A Simple way to stop AIDS, Business Week, August 13, 2001.
21. Pavri, Khorshed, AIDS and Public Health : the Second Decade; INDO-US CME Programme on HIV/AIDS, Key Note Address, Armed Forces Medical College, Pune, 7-8 November 1994.
22. News, The Indian Express, Pune. Friday, 1st Dec. 2006, pp 1 and 2.

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National Seminar on "Issues related to Planning Sustainable Livelihood Settlement for HIV/AIDS affected people in rural areas, National Institute of Rural Development, Hyderabad, 28-30 December 2006. Also in Continuing Medical Education, Module 16: Sector Investment Programme, Public Health Department, Government of Maharashtra, October 2006 to March 2007, and pp 9-29.

Published as Proceedings: HIV and AIDS: Health Care vis-à-vis Mass Hysteria, National Seminar on Issues Related to Planning Sustainable Livelihood Settlement for HIV and AIDS Affected People in Rural Areas, Ed. Bhanj SK and Chinnadurai, National Institute of Rural Development, Ministry of Rural Development, Govt. of India, Hyderabad -30, July 2008, pp 25-46.

All my papers on HIV and AIDS were shared with Prof. K.J. Nath; He was formerly professor of Community Health at All India Institute of Medical Sciences, New Delhi; WHO Consultant; and Member of National Advisory Committee of NACO on HIV and AIDS. We participated in a workshop on Health Information System in India, at Hotel Le Meridian, New Delhi, on Thursday, 6<sup>th</sup> November 2008, he passed on the following to me, "*I have been waiting to tell you that every one of your comments about the HIV "epidemic" have now been substantiated by the gathering evidence from around the World!*".



## **Part B**

# **Non-Communicable Diseases**







# 1. LETTER - HEALTH vs. MEDICINE : LEAST WE FORGET

To the Editor:

Editors of the *Journal of Public Health Policy* deserve full praise for publishing English version of Dr. Paulo Marchiori Buss's presentation at the WFPHA 11<sup>th</sup> Congress of Public Health, August 2006 in Rio de Janeiro, Brazil. This address provides rich evidence in favour of an opinion that, "In a way, globalization is a new instrument deployed by the powerful developed countries to further economic, social and political exploitation of the 'developing' and 'least developed' countries". Possibilities of some hidden agenda also cannot be ruled out. Since globalization and its ramification are rather inevitable, the question is how to cope with it? What is possible for the Governments of the 'developing' countries is to have an independent insight vis-à-vis long-term interest of their people and nation, and formulate policies and make decisions to maximize the possible benefits and minimize, if not eliminate, adversities of "globalization". I am here to focus on the public health issues and health development efforts with reference to globalization.

Just after Dr. Buss's presentation appears an editorial on "palliative care as a public health issue in developing world". What a paradox bordering volte-face! There is no justification for this despite the fact that medical care is a part of public health. One may argue further to make so-called secondary and tertiary health care as part of public health. Incidentally, secondary and tertiary health care is essentially medical care provided by the specialized or super-specialized clinicians. Use of such terms is ingenious way of medicalizing public health after Alma Alta Declaration. Primary health care was indeed a modernization of traditional public health. Failure has been ignored.

When we talk of public health, the vital component *public* is often taken for granted. It is high time that health expert realize that the *public* in the developed countries, developing countries and the least developed countries differ widely and significantly in several attributes and characteristics. True practitioners of public health in different countries and regions of the world, therefore, had their own definitions of science and technology of public health, epidemiology, etc. The term 'new public health' was one of the common expressions. The basic problem was the attempt by the international organizations and

consultants to formulate "universal formula" for highly divergent disparities, the reality of the *people* of the world. For want of understanding the implications, primary health care approach of the World Health Organization failed in its objectives. There is no introspection and "public health" is being new clothing in the UN Millennium Development Goals. Some of the inbuilt reasons for failure of this new venture are mentioned by Dr. Buss.

## PALLIATIVE CARE

Reverting to palliative care, the two main candidates are cancer and HIV and AIDS (I have not used expression HIV/AIDS). This is because for both there is no cure. While it is necessary to provide relief through palliative care to such needy persons, the question to a practitioner of *public* health is of the priority such a care can be provided vis-à-vis other public health problems of the country or state or district. Prioritization in public health practice is generally based on (a) extent of mortality and morbidity of the disease/ailment, (b) economic and social loss and (c) availability of cost-effective and feasible preventive and control measures. National priorities shall have to be reality-based and cannot be determined on the agenda of international or funding agencies. Each of the developing countries in South-East Asia, Africa, South America and else where, has its own characteristics, peculiarities and even disparities. Because of self-assessment of the impact of HIV and AIDS, some countries in Africa might have decided to introduce palliative care for the affected persons as a part of public health service. This situation, however, does neither warrant nor justify advocacy for similar decision by all developing countries.

With these criteria, high priority accorded to HIV and AIDS cannot be justified in India (1). If the fundamental malady is poverty with at least 20 million poor people, this gets highest priority. However, this complex problem is without short-term and sustainable interventions. Reality is that tuberculosis, diarrhoea and acute respiratory infections in children, etc., are neglected when they cause very high morbidity and mortality, economic loss, and against which control measures are effective. Statistics presented in the following tables indicate ground realities and indicate the main priority issues. Other problems include poor environmental health, ineffective general health



service, moribund public health system and grossly limited resources. Palliative care for cancer is available in India in the special centres for “terminal care” Tables 1 and 2).

Table 1: Some deaths by cause, India, 1998 (2)

Disease	Number of deaths per year
Cardiovascular diseases	2.82 million
Caner	0.65 million
Diabetes	0.10 million
Respiratory infections	0.99 million
Diarrhoeal diseases	0.71 million
Injuries	0.92 million
AIDS (1993-2005)	9,215 in 15 years

Note: Data updated from Health Information of India, 2004, Government of India.

Table 2: Comparative Data on HIV/AIDS and Tuberculosis (2)

HIV/AIDS	Tuberculosis
<div>1. HIV positives: Cumulative in 20 years - Estimated as 5.2 million in 2005.</div> <div>2. Reported cases of AIDS: 1,24,995 in 20 years.</div> <div>3. Reported deaths due to AIDS in 15 years: 9,215, (estimated 2.5 million)</div> <div>4. No curative treatment available. Palliative treatment is unaffordable for most patients.</div> <div>5. Except controlling promiscuity, no other effective control measure.</div>	<div>1. Tuberculin positive rate: 85% among persons &gt; 25 years of age.</div> <div>2. Cases of tuberculosis: 15 million. 1.8 million new cases every year.</div> <div>3. Number of deaths: 0.5 to 0.7 million every year. 7,31,952 in 2004.</div> <div>4. Curative treatment is effective &amp; cheap. Duration is 1 to 1.5 year in most cases.</div> <div>5. Available control measures are effective.</div>

Note: Data updated from Health Information of India, 2004, Government of India.

PUBLIC HEALTH vs. MEDICAL CARE IN INDIA

The focus on therapeutic intervention has gradually led to the myth that good health is primarily the result of medical intervention and hospital services. Besides, it created a lack of real understanding that health is governed by and a reflection of the social and living conditions of the community. Medical and surgical treatment claims to offer instant and personal gratification to patients, providers and politicians, as opposed to the claimed long-term benefits of preventive health that may or may not materialize. It also finds greater favour with less well-informed societies. In addition, the emphasis on curative medicine is reinforced by the growth of the medical & pharmaceutical industry and medical associations, which have a powerful influence on Governments (3).

“In the mid-1970s various researches revealed that health improvement can best be attained by behaviour modification and

environmental change. This realization led to the fourth phase of public health, which many experts in public health call the New Public Health. Public health is about the complex interaction between individual health and health beliefs and the intricate features of populations: their social, political, environmental and economic realities. It is in this context we should understand individual lifestyle, genetic and other biological risk factors. New public health focuses on environmental factors in a broad sense – social and psychological as well as physical – and a healthy lifestyle which consequently necessitates that health be placed in the mainstream of development (3).” “The lives and health of people are unequally affected by ongoing development. Modernization, better socio-economic condition and healthy environment will certainly allow some sectors of the population to improve health. However, the key issue is how health improvements become distributed in the



entire population, i.e., the equity of health. For all the extraordinary advances in health achieved in this century, there is still too much suffering around (3).”

In India, even the scientists and educated, tend to blindly follow the Western Developed

Countries in understanding “health care” and “public health needs”. But the people and governments in those countries have already taken care of their basic health needs. Table 3 provides comparison between the developed countries and India.

Table 3: Fundaments for health status: Public Health System in India vs. in Europe and North America

<i>Primary elements</i>	<i>Developed Countries</i>	<i>India</i>
Safe water supply	Assured to all	Poor
Excreta – safe disposal	Excellent	Poor
Control of vectors	Very good	Very poor
Solid waste disposal	Very good	Very poor
Healthy housing	Most families have it	Some have, many in slums
<i>Sanitation and hygiene</i>		
Personal	Good	Poor
Food	Very good	Very poor
Public places	Very good	Very poor
<i>Pollution</i>		
Air	In good control	Rampant
Water	Rare	Universal
Soil	Rare	Universal
Noise	Uncommon	Very common
Nutrition	Obesity is usual	Undernourishment
Basic education	High literacy	Low literacy
Occupational safety	High	Poor
Gainful employment	Employment usual	High unemployment
Capacity to buy food	Excellent	Poor for many
Social security for poor	Adequately high	Very limited, if any
<i>Control of diseases</i>		
Communicable	Diseases are rare	Diseases are rampant
Noncommunicable	High burden	Less, but on increase
<i>Medical and allied services</i>	<i>Present concern of public health service</i>	<i>Undue High priority to medical care and neglect of public health</i>

However, in contrast with this situation, clinical specialists in India have developed sophisticated, highly specialized and advanced modern medical facilities in the private and corporate hospitals in many cities. Interestingly, this has resulted in what is called “medical tourism” being promoted by the Government of India. Unfortunately, in epidemiological transition with

all kinds of diversities and variations, India is facing double or tribal burden. However, in planning and development, we incline heavily for “India” (privileged few) than “Bharat” – real and major country. Politicians, planners and administrators talk about the people – the poor and their problems, but what is delivered is low quality, unsatisfactory and inadequate medical care.



References:

1. Deodhar, NS. *HIV and AIDS: Health Care vis-à-vis Mass Hysteria, National Seminar on Issues Related to Planning Sustainable Livelihood Settlement for HIV and AIDS Affected People in Rural Areas*. Seminar Papers, National Institute of Rural Development, Ministry of Rural Development, Govt. of India, Hyderabad -30, 28<sup>th</sup> to 30<sup>th</sup> December 2006.

2. Deodhar NS, *Commonsense and the New Venereal Disease called HIV/AIDS, Round Table on Reflections on Responses to HIV/AIDS, Perspectives from South Asia*. Voluntary Health Association of India, 22-24 January 2003, New Delhi, *Health For Millions*, **28** (6) and **29** (1):21-25, February-May 2003.

3. Uton Muchtar Rafei, Regional Director, WHO, SEARO, New Delhi, Changing Global Scenario and Public Health for the Next Millennium, Keynote address, WHO Regional Conference on Public Health in South East Asia in the 21st Century, Calcutta, 22-24 November 1999.

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## **Part C**

# **Environmental Health**







## 1. A Note on Environment and Health

Environment is one of the major factors determining the status of man. Human settlements tend to disturb ecological balance and this may lead to ecological degradation for one reason or another unless preplanned and determined steps are taken to prevent such an event. This note deals with the health aspects of environment connected with human settlement.

**1. Sanitation:** Healthy environment is the one which is free from any hazard to health. However, human settlement, unless precautions are taken for prevention, invariably leads to pollution of water sources, pollution of surface soil due to excreta, collection of solid wastes and refuse, and generation of conditions favourable for breeding of house-flies, mosquitoes and other insects responsible for spreading disease.

**2. Urbanization and Deforestation:** Development process and population growth lead to urbanization and contributes to deforestation. Migration is one of the basic issues; and one of the major environment problems has been the growth of slums and shanty towns. Heterogeneous group of people come together and create a new social and cultural climate and interrelated reactions. The secondary issues such as sanitation, poverty, etc., are also very important considerations.

**3. Population Growth:** This affects ecological balance in various ways. If there is relative lag and development fails to keep pace in satisfying the growing needs, adverse effects on human settlement become progressively evident. Deficiency of food leads to malnutrition, of housing to poor sanitation, of lack or inadequacy of occupation and employment to poor economy, poverty and delinquency, of education to ignorance, of social injustice to chronic deprivation syndrome, etc. And several of these factors result in high fertility. Impacts of poverty and poor personal hygiene on health are significant.

**4. Agriculture:** Food is an important life support. Excessive demands on agriculture have resulted in mechanization, and use of fertilizers and pesticides. All the three have introduced new health hazards in the environment of a vast majority of our rural population

**5. Industrialization:** Impact of work environ-

ment has been so profound that Industrial or Occupational Health has become a super-speciality in health sciences. Apart from very heavy and inevitable (to a certain extent) pollution of water, air, etc., industrialization has exposed man to thousands of toxic chemicals, mechanical trauma, exposure to excessive heat and poor ventilation, inadequate light and comfort, psychological problems such as boredom and absenteeism, etc. Noise pollution is another problem. All these also lead to low productivity and income generation.

**6. Other Developmental Projects:** Projects such as for irrigation and major construction works for dams, roads, railways, housing, etc., result in ecological changes and disturbances of the balancing forces. This may create new potentials for spread of disease, viz. (a) probability of increase in the spread of communicable diseases already prevalent in the area, e.g., malaria, (b) probability of introducing new diseases, e.g., filariasis, (c) likely changes in the nature of micro-nutrient content of water, food, etc., e.g., Fluoride, (d) probability of non-communicable diseases such as cardio-vascular, cancer, diabetes, nutritional, mental and degenerative.

It would be desirable to know the vulnerability of the area to common diseases and usual incidence of various diseases – both communicable and non-communicable. This will have to be viewed in total developmental perspective.

**7. Ethical Values and Cultural Inheritance:** Social aspects of environment cannot be separated from human settlements. Many anthropological issues arise. Traditional family structure and kinship tend to disappear and certain important cultural safeguards tend to disappear or get diluted. The issues which were effectively and satisfactorily tackled in joint and extended families, now become problems. A new class of individuals who are socially dependent is emerging fast, viz. orphans, beggars, cripples, mentally defectives, etc. While nuclear family cannot deal with this, secondary social institutions have failed to develop.

**8. Disasters:** Floods, droughts, land slides, hurricane and cyclones, earth quakes, riots and wars tend to affect all environments suddenly. In order to deal with them effectively, one has to be in a state of preparedness.



2.

Solid Waste Management for Better Environment

Chairman Sir, fellow participants, ladies and gentlemen, at the outset, I would like to congratulate the authorities of Sai Health Foundation for their efforts to involve and steer both the stakeholders and the beneficiaries in an important endeavour of solid waste management. I sincerely thank them for giving me opportunity to participate in this important initiative. The civil bodies have oft repeated slogans such as “green city and clean city”. However, what is exposed is their high tolerance to filth and untidiness. In general, the present state of urban public health is moribund and functioning of the civil bodies is far from satisfactory. The selected topic for today is of solid waste management for better environment. It is my proud privilege to present my views on this issue.

**Introduction:** Solid waste management for its disposal is one of the components of sanitation. Sanitation means the development and establishment of conditions in the environment favourable to health. Sanitation envisages the use of time-tested public health measures to promote health and prevent disease. In this endeavour the focus has to be on cleanliness and environmental health. Without high standard of sanitation and hygiene, state of urban public health and quality of life will be poor. Healthy city will be always beautiful, but beautiful city may not be necessarily healthy.

The Local Self-Governments were established primarily to improve sanitation and hygiene. However, these civil bodies have failed miserably in keeping urban areas clean and healthy. What is most painful is the fact that even after more than fifty years of independence and tremendous

advances in science and technology Municipalities and Municipal Corporations have remained apathetic, ineffective and inefficient in providing even the basic amenities such as safe water, sanitation and public health. In fact, the civil bodies have become expert in ignoring pollution and maintaining high standard of insanitation and poor hygiene. Cities and towns have become “Human Zoo” because people are made to live and behave like the captive animals. In this deplorable situation, corporators, commissioner and other top municipal officials should be willing to accept the responsibility, ready to commit and actively work for improving urban public health as top priority. Resources required for making cities healthy and sustainable should be generated and mobilized. Without going into the broad topic of urban public health, I propose to deal with the subject of menace of poor management of solid wastes disposal. With a brief situation analysis, I will mention and indicate simple measures to bring about visible improvement in the environment. However, all of you shall have to take sanitation as your priority mission. City fathers and administrators should understand the seriousness of their inactivity, apathy and indifference. They should take necessary steps to fulfill statutory responsibility and obligation for sanitation and hygiene. There can be no excuse. Difficulties can always be solved, unless are to be used as excuses.

**Solid Wastes:** Broadly, these include unwanted and useless solid materials.

1. *What are these?* These include garbage and discards of all kinds. See table 1.

Table 1: Constituents and sources of solid wastes

Item	Description	Sources
(a) Garbage	All types of waste food putrid materials, dung	Eating places, Food processing, Homes, Hotels, Hostels, etc.
(b) Refuse	Left over useless matter	Human settlements.
(c) Rubbish & debris	Non-putrid organic and inorganic, combustible & non-combustible	Packing materials, Plastics, Glass, Metal scrap, Building waste materials, etc.
(d) Sweepings	Grit, dust, paper, etc.	Homes, Streets and open spaces.
(e) Ash	Left over after burning	Homes, Industries & Open areas.
(f) Dead animals	-	Wild and Domestic.
(g) Plants & trees	Trimnings & accidents	Homes, Streets, Open spaces.
(h) Big Discards	Home appliances, Old Furniture, Packing Boxes	Homes, Hostels, Industries.
(i) Human faeces	-	Slums, Streets, Open areas.



2. **Classification:** From the point of management of sanitary disposal the solid wastes are classified as (a) Dry: (i) Reusable or can be recycled, and (ii) Rest such as waste materials from building activity, etc. (b) Wet: (i) Bio-degradable and can be subjected to microbial disposal by decomposition, e.g., composting, vermi-compost, energy production, (ii) Other special type such as

dead animals, trees, etc., which require specific ways for disposal. (c) Human faeces: This waste is the most dangerous hazard from health point of view because majority of common ailments arise because of unsanitary disposal resulting in contamination of drinking water, food and hands.

3. **Health Hazards:** These are listed in table 2.

**Table 2:** Potential Health Hazards from Unhygienic Disposal of Solid Wastes

Nature of Health Hazard	Examples	Manner
Communicable Diseases	Diarrhoeal Diseases, Dysentery, Typhoid fever, Cholera, Infectious Hepatitis, Poliomyelitis, Intestinal Worms, Food Poisoning, etc.	Faecal contamination of water, food, flies, etc.
Other infections	Sepsis, Lung infections, Cross Infections in hospitals	Hospital wastes
Breeding of House-flies	High potential to spread above mentioned infections.	Any decomposing organic material
Rat- and Dog-borne Infections	Rat-bite fever, plague, Rabies	Provide food and breeding places
Poisoning	Radioactive & other Poisons	Exposure
Accidents	Explosives, Fire, etc.	-
Air pollution	Burning and Incineration of Combustible refuse in open Refuse containers and dumps	-
Offensive smells	Public latrines, urinals, markets	Decomposition
Aesthetically poor		Lack of hygiene

These hazards can result in deprivation from feeling of well-being, minor and even major disorders resulting in sickness, loss of man-days, poor production and economic loss, and deaths. One cubic foot of garbage breeds as many as 70,000 flies in a week. When a house-fly sits on faeces, its feet gather the excreta. In this way the flies truly function as spoons and makes man to eat faeces (like pigs do). In discarded tins and tyres water accumulates, breed Aedes mosquitoes and cause dengue fever. Number of deaths due to rabies in one year in Pune is more than the number of rabies deaths in entire United States of America in ten years. Cause of rabies is dog-bite. In spite of it being their legal responsibility to control stray dogs, municipal authorities prefer to love dogs and be cruel to the tax-payers. This amounts to culpable homicides. The School of Health Sciences of University of Pune has long ago given a proposal to Pune Municipal Corporation in this regard.

4. **Current Status of Solid Waste Disposal Management:** This is *ad hoc*, precarious and not effective. The common sight is of heaps of refuse and garbage scattered all over. Road-side public

containers and refuse bins invariably overflow. They are often not approachable. There is no need for sign boards for refuse bins, public toilets, urinals, etc. We can smell them offensively from long distance. The matter becomes worse because many citizens, even the educated, are habituated and don't mind to litter the open spaces or corners with garbage. For them refuse containers are superfluous. There is hardly any road where building materials and debris either continue to occupy significant portion of the road or create obstacle to traffic. There is lack of hygiene & cleanliness. Environment is unsightly, if not repulsive.

Some refuse containers have rotted or cracked, but neither replaced nor repaired. Even on the recently swept roads one can see papers and other rubbish littered on the sides. It is difficult to find a bus-stop which is clean. Rats and cockroaches are there. Corpuses of dead animals remain and even decompose on road. Population of stray dogs is reported as growing. There is often in news that such and such area in the city is clean. This is in reality an indicator of administrations high level of tolerance to filth.



It is not uncommon to come across human and animal excreta on road-sides and open areas. Slum dwellers, the poor, construction workers and domestic servants staying even in posh areas have to resort to open defaecation. In every morning we see them sitting by road side, in open spaces, along railway tract, etc. Defects in underground drainage system may result in contamination of drinking water and there is potential danger of epidemics of water-borne diseases. Human faeces are the main source of germs that cause diseases. Therefore, disposal of excreta is the most important sanitary measure for health. However, much of raw sewage is discharged without proper or any treatment directly into the rivers. In fact our rivers are big drains as there is no water in there. Spending money on safe disposal of human excreta, is cost-effective. It is for the city fathers and administrators to understand the seriousness of their inactivity, apathy and indifference; and to take necessary steps to fulfill this statutory responsibility and obligation. There can be no excuse. Difficulties can always be solved.

5. **Industrial Wastes:** Although the conditions are improving, the culprits are not only the private industries, but also the public sector and Government units. Existing laws are adequate, but enforcement machinery is slack and ineffective. Pollution is only a symptom, whereas environment is a concern. Pollution is due to mismanagement of the environment. So long as we fail to manage environment, we will continue to pollute it. With all the track record of poor performance, it is too much to expect that Corporations can do much to ensure proper disposal of industrial wastes.

6. **Solutions:** There are many good ways and examples of solid waste management. There is no need for any body to visit Japan or Singapore. Surat has demonstrated what can be done if there is a will. However, I will not go into technical details of solid waste management. If this ever growing problem is to be tackled successfully, slogans and cosmetic measures will not help. Technology is there. An efficient team of staff under competent public health engineer or contracting firm can do the job, provided full authority, resources and support are given, and there is no political interference.

7. **Priorities:** First things must receive priority. Priority depends on seriousness and severity of the hazard, availability of solutions, feasibility of solution, simplicity and acceptance by the people, etc. What are the priorities?

(a) **Disposal of human excreta:** If this is efficiently and hygienically carried out, there will be 70 to 80 per cent drop in illnesses our people suffer from. This will result in well-being, higher productivity, economic gains, and what not.

(b) **Hospital wastes:** Because of the recent law on the disposal of hospital wastes, we see lot of activity. Only 15 per cent of the hospital wastes are hazardous. Incinerator is not feasible for small establishments. Secondly, if incineration is not done properly, instead of soil and water pollution, air will be polluted. In practice, contaminated biomedical wastes can be rendered safe simply by disinfection, autoclaving or microwaves. When our disposal of solid wastes is of such a poor quality, damage done is far greater than the potential of hospital wastes. Need is to concentrate on all wastes and not only the hospital wastes. Overall failure to manage solid waste disposal is much more hazardous. We cannot blindly follow the developed countries.

(c) **Control of House-Flies:** Bio-degradable garbage provides maternity wards and free lunch counter for the flies. One cubic foot of garbage exposed to the flies can produce as many as 70,000 flies in a week. Public refuse bins and containers are hardly ever emptied completely. If garbage is not removed for five to seven days, and if one house-fly lays eggs, hundreds of flies fly out. The control measures are simple, but require effective management. A simple way is not to expose refuse to house-fly to lay eggs, and to dispose it efficiently within five days.

(d) **Prevention of burning of refuse in open:** This is a bad way of disposal because it results in air pollution. This has been prohibited under the Municipal Act. However, it is common to witness especially during winter that many sweepers, including those employed by the Corporation, regularly burn refuse. It will be a good beginning if the local bodies clean their own house first and ensure that the employees do not burn refuse such as waste paper, boards, dry leaves, etc.

(e) **Generating proper climate for cleanliness and hygiene:** Authorities always tend to blame people. However, there is no introspection on their part about the hygiene and maintenance of their own establishments. Are the buildings and offices of the local bodies clean and tidy? They are not. Are the sanitary blocks in the offices clean and need a sign-board to indicate the location? Most probably not. Are the Municipal buses ever cleaned after they are purchased? Never so far. First mass-drive should be to train and discipline these public establishments. They should set an example and then go to the people.



**Management:** The main problem is utter lack of interest in public health. We seem to function by political interests rather than public needs, with *ad hoc* and not planned actions, and at best when there is major breakdown, crisis or a serious complaint. Medical Officers and City Engineers seem to spend most of the time to look into the complaints of influential persons. Most of these complaints are due to failure of the civic services to deliver goods and lack of quality and efficiency. When Administrators fudge, they set up Committees. Sometime ago, I was nominated on Citizen's Committee on Sanitation set up by Pune Municipal Commissioner. In retrospect, it turned out to be a farce and our report is gathering dust. I don't wish to deliver a sermon on management. However, when officials and local politicians talk of clean or beautiful city, they never define these terms. There is no clarity about the plan of action. Because of poor maintenance and supervision, sanitary services are not sustained and break-downs are frequent. Incidentally, official study-visits to Europe, America or Japan will not help in improving city sanitation and public health.

Ask questions? Why the cantonments are cleaner than municipalities? Why mission hospitals are tidy and cleaner than Government and Municipal hospitals? Why the petrol pumps premises are clean? If there is a will, there is a way. When Dr. J. K. Adranvala was Health Officer of Pune Municipal Corporation from 1948 to 1953 and Mr. S. G. Barvve was the Commissioner, notoriously filthy Pune became clean and tidy; mosquitoes, plague and other blemishes disappeared. There was a sea-change of health reforms, cleanliness, discipline and order.

**Insights and the Road Ahead:** If we honestly want our cities always clean, healthy and beautiful, following practical and essential measures should be taken without loss of time:

☆ Appointment of a Chief Public Health Officer: The present medical officers should look after the curative services, viz. dispensaries, maternity homes and hospitals. Immediate need is of a competent expert in public health, who has good track record of efficiency. We need professional leadership. Such a person should be allowed to function freely without any hurdles.

☆ Similarly, an efficient public health engineer I/C environmental health, is essential. The daily waste collection per person in Pune is only 353 gm/day,

while in Mumbai it is 469 gm/day and in Surat it is 91 gm/day. This works our efficiency percentages of 73.54 in Pune, 78.69 in Mumbai & 94.9 in Surat.

☆ Co operation of the citizens is a key factor. This will be possible only if municipalities and municipal corporations act efficiently on their own and produce a demonstration effect or obvious impact on the poor state of affairs. They should endeavour to set an example by ensuring high standard of house-keeping at all of their buildings, offices, buses and bus-stops, markets, etc.

☆ The things to do first include: 1. Keeping all the public refuse containers and surroundings clean so well that friends meeting there don't mind to wait at that spot and talk for a while. 2. Encourage/promote segregation of wet (biodegradable) and dry (recyclable) wastes. 3. Ensure that municipal staff and people do not burn refuse. 4. Providing clean foot-paths on which people can walk with ease and safety, without any obstruction of all kinds, e.g., venders, scrubs, encroachment by shopkeepers, etc. 5. Asphaltting or concretizing entire breadth of every road. This simple measure will improve the sight and make it easy for the sweepers to clean the lane/road/street. 6. Ensuring that no rubble, debris, building materials, etc., is allowed to be deposited and remain on any road for more than 24 hours. This should apply equally to all parties. 7. People and voluntary bodies should be actively involved and trained in hygiene and prevention of environmental degradation. Everybody from the elected corporators, officers, down to the sweepers need such training. 8. Unless we put priorities in order & manage public health concerns effectively, our grandchildren are more likely to live in a distress rather than have a better quality of life.

So please wake up. As a caution, I wish to say that a new course of action is considered when there is a perception of serious risk to something that is considered vital. Public health does not meet this prerequisite in India. Despite national assertions to the contrary, health is not a priority concern of the local bodies; and this is not likely to change in the near future. There is little evidence of significant dissatisfaction on the part of authorities with the current state of affairs. Sense of urgency is lacking. Pro-activity requires much higher level of concern and commitment than that prevails. I do hope and pray that this training is only a beginning of a process and results in pro-activity. If there is a will, there is a way always. I thank you for attention.

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Source of data: Parikh, Priti H., *Solid Waste Management of Large Indian Cities*, Dissertation, School of planning, Centre for Environmental Planning and Technology, Ahmedabad, 1996. Key-Note Address, Training Programme for Senior Functionaries of the Local Self-Governments in Pune region, Sai Health Foundation, 21<sup>st</sup> May 2005, Pune.



3. Environment, Workplace and Health

I. Introduction:

- 1. Supremacy and influence of the environment on man are so great that without environment man cannot survive. Thus, in a real sense, your environment is your extended body.
- 2. To remain healthy and successful, we have to have adequately healthful environment – an environment that is conducive to healthy living and is not polluted.
- 3. If the environment is deleterious or unhygienic, one may feel sick, or develop illness, or acquire disease.
- 4. What constitutes environment? Each and every thing that surrounds you is your environment. Our clothes and shoes have truly become extended part of our body.
- 5. For better understanding, environment may be classified into (a) physical, (b) biological and (c) social.

II. Common Environmental Health Hazards:

- (a) Unsafe and inadequate drinking water.
- (b) Insanitary disposal of human excreta.
- (c) Unhygienic disposal of domestic and industrial wastes – solid, liquid and gaseous.
- (d) Pollution of soil, water and air.
- (e) Unhealthy housing and workplaces – badly ventilated, overcrowded, poorly lighted, accident prone or otherwise hazardous.
- (f) Social, political and communal unrest.

III. Environmental Issues at Workplaces:

- (a) Overcrowding, inadequate ventilation and poor lighting.
- (b) Accident proneness: poor house-keeping, defective or improper tools and machinery.
- (c) Excessive heat, vibrations, noise, etc.
- (d) Air pollution: Exposure to toxic and hazardous chemicals, pesticides and gases.
- (e) Exposure to ionizing radiations, infrared and ultra-violet rays, micro- and radio waves.
- (f) Situations leading to boredom and fatigue, poor ways of lifting and carrying loads.
- (g) Stressful work positions and postures.
- (h) Exposure to pathogenic organisms.
- (i) Conflicts and stress due to physical, social, behavioural, psychological, economic, political and management factors.

IV. Chemicals which are carcinogenic to man:

Aflatoxins, 4-aminobiphenyl, Arsenic compounds, Asbestos, Auramine (manufacturing), Benzene, Benzidine, Bis (chloromethyl) ether, Cadmium oxide, Chloramphenicol (?), Chloromethyl methyl ether, Chromium (chromate production), Cyclophosphamide, Diethylstilbestrol, Haematite (mining), Isopropyl oil, Melphalan, Mustard gas, 2-naphthylamine, Nickel (refining), Oxymethalone (?), Phenacetin, Phenytoin, Soot, tars and oils (PAH's), Vinyl chloride, N-bis (2-chloroethyl)-2-naphthylamine.

V. Industrial Processes which are Carcinogenic but the causative chemical is unknown:

Process	Target Organ
1. Manufacture of auramine	Bladder
2. Chromate-producing industries	Lung
3. Exposure to cadmium (possibly cadmium oxide)	Prostate Lung (?)
4. Haematite mining	Lung
5. Nickel refining	Nose & Lung

VI. Agents that may cause Chronic Bronchitis?

A. Gases - Aldehydes (Acrolein, Formal-dehyde), Ammonia, Chlorine, Chloromethyl Ether, Osmium Tetroxide, Oxides of Nitrogen, Phosgene, Toluene Di-isocyanate, Vinyl Chloride Monomer.

B. Particles: Brick dust (probable), Cadmium (probable), Cement dust, Chromium, Coal mine dust, Cobalt (probable), Coke oven, Cotton dust, Diesel exhaust, Parquest (Possible), Pottery dust, Wood dust, Sodium hydroxide, Vanadium (probable), Western Red Cedar, Endotoxin, Grain dust (wheat, barley), Polychlorinated Biphenyls (probable), Tungsten Carbide (probable).

VII. Occupations with exposure to Arsenic:

Acetylene workers, Acid dippers, Alloy makers, Aniline workers, Bleaching power makers, Cattle food workers, Boiler operators, Book binders, Brass makers, Bronze makers, Bronzers, Cadmium makers, Ceramic makers, Copper smelters, Cut-glass workers, Defoliant makers, Die makers, Dyers, Electroplaters, Enamellers, Etchers, Ferrosilicon workers, Farmers, Miners, Fertilizer makers, Fur handlers, Galvanizers, Gardeners, Glass makers, Glue manufacturers, Gold extractors, Gold refiners, Hair



remover makers, Herbicide makers, Hide preservers, Metal refiners, Ink manufacturers, Insecticide makers, Jewelers, Lead burners, Insecticide sprayers, Lime workers, Lithographers, Metal cleaners, Nitro cellulose makers, Drug makers, Rubber workers, Seamstresses, Zinc smelters, Paint makers, Painters, Paper glazers, Paper makers, Paper hangers, Paper printers, Pelt workers, Pencil makers, Photographers, Pigment makers, Plastic workers, Plumbers, Poison bait makers, Pottery workers, Rayon makers, Sheep wool cutters, Silver refiners, Soda makers, Solders, Sulfuric acid workers, Tannery workers, Taxidermists, Textile painters, Tanners, Tobacco processors, Tree sprayers, Velvet makers, Vinery workers, Vineyard workers, Weed sprayers, Arsine rosters, Cannery workers, Wire drawers, Zinc makers, Sealing wax makers, Sheep dip workers, Defoliant applicators, Oil refinery workers, Ceramic enamel makers, Rodenticide makers, Artificial flower makers, Weavers, Rotogravure workers, Dimethyl sulfate makers, Water weed controllers, Wax goods manufacturers, Oil cloth manufacturers, Wood preservative makers, Citrus fruit orchard workers, Cotton plantation workers, Hydrochloric acid workers, Linoleum colour workers, Organic chemical synthesizers, Semiconductor compound makers.

#### **VIII. Common Chemicals used as Pesticides:**

Arsenic, Inorganic and organic Carbamates, Chlorinated Hydrocarbons, Coal tar and its derivatives. Copper, Inorganic Halogenated Aliphatic Nitrogen compounds, Petroleum oils, Organophosphorous compounds, Pyrethroids, Sulfur.

#### **IX. Occupational Exposure to Ultraviolet Rays:**

Aircraft workers, Barbers, Bath attendants, Construction workers, Drug makers, Electricians, Farmers, Fishermen, Food irradiators, Foundry workers, Glass blowers, Oil field workers, Ranchers, Seamen, Vitamin D makers, Welders, Metal casting inspectors, Steel mill workers, Tobacco irradiators.

#### **X. Occupational Exposure to Infrared Radiation:**

Bakers, Blacksmiths, Chemists, Cooks, Electricians, Foundry workers, Glass workers, Soldiers, Steel mill workers, Welders.

#### **XI. Exposure to Micro- and Radio waves:**

1. Frequency up to 30 MHZ - Factory, Furniture, Auto and Electronic workers, engaged in welding, Melting, Drying, Food processing, Gluing, Radio navigation, and Radio-Astronomy.
2. Frequency -- 30 TO 300 MHZ - Electronic workers, Scientists, Microwave Oven operators, those engaged in Broadcasting Television, Air Traffic Radar, and Ovens.
3. FREQUENCY -- 300 MHZ TO -300 GHZ - Broadcasting personnel, Electronic workers and researchers engaged in Television, Meteorological Radar, Telemetry, Nuclear Pulpits, Altimeters and Radio Spectroscopy.

#### **XII. Environmental Agents Associated with Cardiovascular Diseases:**

1. Chemicals : Nitrates, Solvents, Fluorocarbons, Antimony, Arsine, Yellow Phosphorous, Carbon disulfide, and Carbon monoxide.
2. METALS : Lead, Cadmium and Cobalt.
3. PHYSICAL AGENTS : Noise, Radiation, Heat and Cold.

#### **XIII. Occupational Diseases :**

##### **(a) Traumatic Disorders -**

1. Locomotion and Postural Disorders - e. g., backache due to faulty sitting postural, sprains, etc., due to wrong methods of lifting and carrying loads. Repeated motions may cause boredom and increase accident proneness.
2. Accidental Injuries - due to falls, falling objects, while working on machines, explosions, collapse of building, etc., e. g., hand injuries, amputations, head injury, and loss of eye. Electric shock will result in Burns and Unconsciousness.
3. Disorders due to use of Vibrating Tools - e. g., 'white fingers', tenosynovitis, bursitis, and osteoporosis.
4. Disorders due to Air Pressure - e. g., high pressure may result in Joint Pain, Caisson Disease, Cardiovascular Distress, Paralysis; and low pressure results in ear pain, Rupture of Ear Drums, Headache, Oedema of the Lungs, and Air Embolism.
5. Deafness - This is usually due to exposure to excessive noise. But chemicals can also cause deafness. Excessive noise also cause Fatigue and Psychological Disturbances such as irritability.



**(b) Thermal Disorders** - (i) Excessive heat can cause discomfort, sweating, dehydration, heat cramps, hyperpyrexia (heat stroke), and heat exhaustion. (ii) Excessive cold can cause chilblains, frostbite, Reynaud's Disease, and wet gangrene (Trench Foot).

**(c) Disorders due to Exposure to Radiation –**

**(i) Non-ionizing Radiations** – 1. Ordinary light can cause visual fatigue due to glare or flicking. Snow Blindness.

2. Lesser can cause burns, corneal damage.
3. Ultraviolet rays can cause skin burns, tanning, keratitis, conjunctivitis, cataract and cancer.
4. Infrared rays can cause burns and cataract.

**(ii) Ionizing Radiations** – Gamma ray and, X-rays can cause acute radiation syndrome, cataract, sterility, nephrosclerosis and cancer.

**(d) Poisoning** - This is caused by exposure to or ingestion of chemicals or metals. This may be acute or chronic. Common agents are lead, arsenic, chlorine, mercury, cadmium, chromium, selenium, carbon monoxide, hydrogen sulphide, ammonia, carbon tetra chloride.

**(e) Allergic Conditions** - Many chemicals can cause dermatitis, skin rash, respiratory distress, or even anaphylactic shock.

**(f) Toxicity to Chemicals** - Depending on the chemical, dose, and exposure many diseases can develop, e. g., anaemia, cancer, chronic bronchitis, pulmonary asbestosis, pneumoconiosis and other fibrotic disease of the lungs (Silicosis), liver damage, cardiovascular diseases, etc. Symptoms are specific according to the chemical, e. g., constipation and intestinal colic for lead, nasal bleeding for arsenic, tremors for mercury, and jaundice for carbon tetra chloride.

**(g) Psychological / Behavioural Problems** – Examples are boredom, psychosis, neurosis, behavioural problems, mass hysteria.

**(h) Infections** – Common examples are tetanus, anthrax, laboratory infections, fungal infections, Hydatid disease, and brucellosis.

#### **XIV. Control of Environmental Factors :**

##### **A Care of Environment itself –**

1. Provision of safe building with assured safety measures, correct installation of the machinery with

protective shields. Fire and emergency escapes, etc.

2. Thermal comfort by ensuring adequate ventilation, and temperature regulation. Air should be warm enough to prevent excessive heat loss, but not too hot to prevent adequate heat loss from the body.

3. Pollution free atmosphere, viz., of reasonable purity and safety so that harmful substances like dusts, fumes, gases do not exceed the threshold limits, i.e., the maximum allowable concentration.

4. Adequate lighting, avoiding glare and excessive shadows. Lights should not flicker.

5. Noise control: Suppression of excessive noise.

6. Provision of adequate space prescribed and necessary for work and movements.

7. Good housekeeping.

8. Safe water supply and adequate sanitary conveniences.

9. Rest and recreational facilities.

10. Regulation of hours of working.

11. Wages policy, incentives, rewards and security.

12. Promotion of pride of craftsmanship and proper management.

##### **B Control of Harmful Agents -**

1. Replacement of dangerous agents and their substitution by harmless ones, e.g., use of carborundum in place of sand blasting, and sesquisulphide of phosphorus in place of yellow phosphorus.

2. Change in the physical state of dangerous substances, e. g., use of oily paste of lead instead of lead oxide power.

3. Complete enclosure and automation of dangerous processes, e. g., screening of the moving parts of a machine, or automatic mixing and packing of hazardous powders in an enclosed or sealed machinery.

4. Isolation of the hazardous processes, e. g., welding, handling of radioactive substances, etc.

5. Physiological and safe designing of the plants and machines, e. g., provision of safety guards, fencing, earthing of electrical appliances, etc.

6. Automatic removal or disposal of dangerous substances and fumes by in situ exhaust ventilation, in cotton and other dusty industries.

7. Legislative prohibition of certain substances, and notification in case of toxicity of others, e. g., carbon disulphide, benzyl, and arsenic poisoning.

##### **C Precautions by Employees and Management -**

1. Vocational guidance and counselling.



2. Fitting the job to the man, and fitting the man to the job, i. e., proper selection and pre-placement examination, job training and job supervision.
  3. Provision of protective clothing and appliances.
  4. Immunization and other preventive measures.
  5. Environmental and health monitoring, e. g., routine and periodical environmental and medical checks.
  6. Establishment of industrial medical service. It is essential to appoint qualified Industrial Health Officer.
  7. Consultancy services by the specialists in occupational health, environmental health, safety engineer, industrial management, etc.
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Lecture to Industrial Health Officers, Training Course on Environment Awareness, conducted by National Safety Organization, Hotel Pancharatna, Tadiwala Road, Pune – 1, on 24<sup>th</sup> May 1997.







# **Part D**

## **Nutrition**





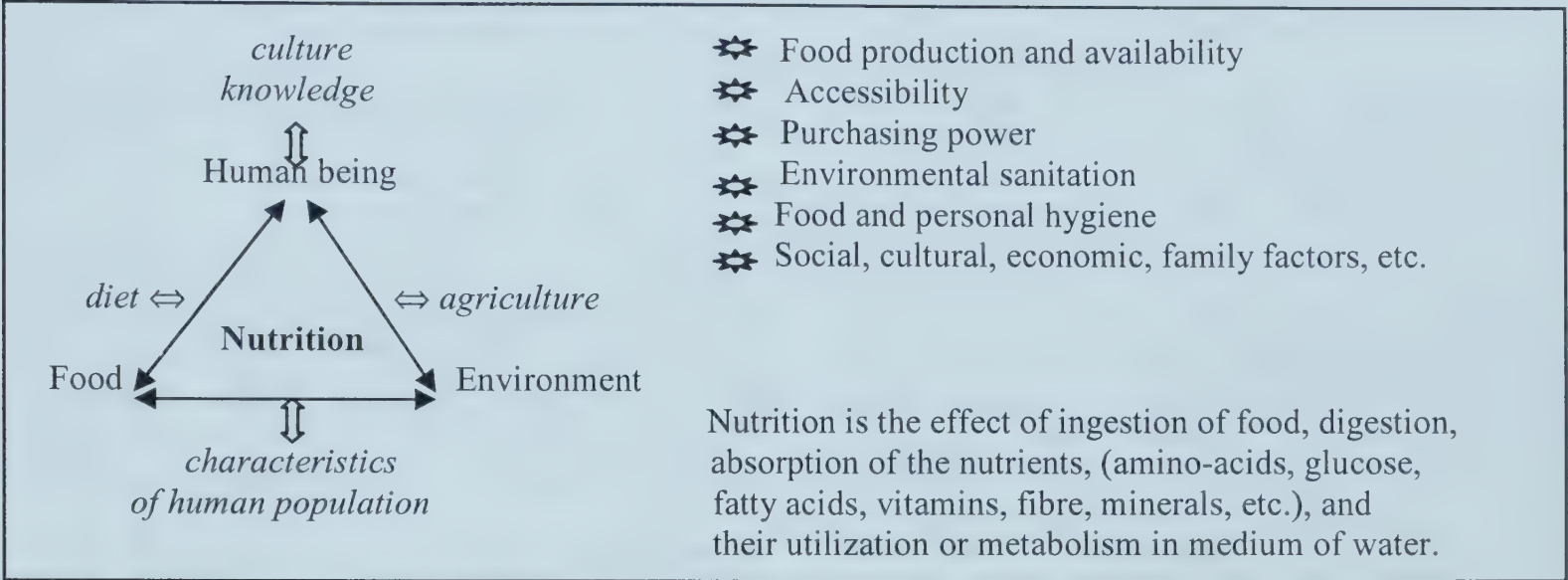
# 1. National Nutrition Mission: Feedback and Comments for the Executive Committee

The following paragraphs correspond with the Terms of Reference given to the Executive Committee of the National Nutrition Mission.

1. To identify nutritionally backward regions and groups in the country requiring special focus on implementation of nutrition programmes:

Human nutrition has become a very complex issue because of the social, political, cultural, commercial, topographical and other factors. The status of undernutrition or malnutrition represents only a tip of the iceberg of multiplicity of a mix of the variables that influence or determine human nutrition. A simple version is seen in diagram I.

Diagram I: Determinants of Human Nutrition



In view of this scientific and epidemiological reality, it is inappropriate to think of nutritionally backward regions & groups. There are malnourished people in Punjab and obesity is seen in U.P. and M.P. At several places malnourishment and obesity co-exist. The basic principle of primary health care is to ensure that all essential health care reaches all, especially the have-nots. Target shall have to be family and not a community or region. Nutrition security is the right of all, especially the poor.

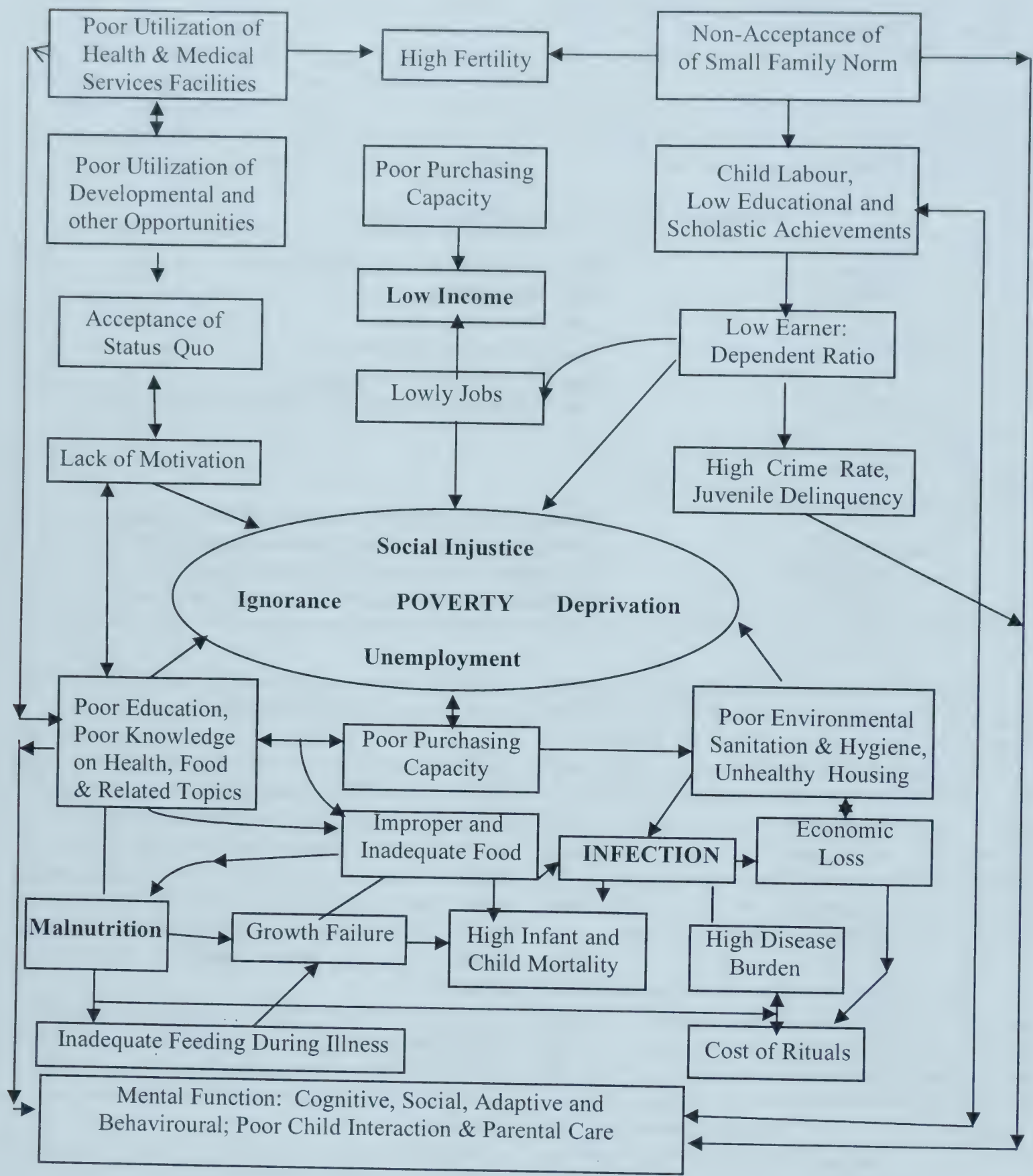
The underlying issues are of poverty, lack of equity & social injustice. (Diagram II) Unless these primary social ailments are taken care of, mere window-dressing will not help. In view of these circumstances, this term of reference should be viewed with a much broader perception. In order to have sustained improvement and nutrition security, it is suggested that the National Nutrition Mission should adopt alleviation of poverty as a basic strategy and priority. Advocacy for this strategy can be justified strongly because such as basic approach will accrue multiple benefits such as improved productivity, better nutrition and health,

economic justice, upliftment & self-respect among the poor, etc. Intervention should be directed:

- (a) To tackle poverty in innovative ways for upliftment of the poor who should be enabled to pay for their all basic family-life needs in about five years, covering all families below poverty-line.
- (b) All people below poverty line should be reached, irrespective of their location and social status. Concentrate on the welfare of these families. Highest priority should be provided to 'Bimaru' States – U. P., Bihar, Madhya Pradesh and Rajasthan.
- (c) A simple way is to employ at least one member of BPL family in Government service, or in public sector industry, or encourage the private bodies to do so by 100 per cent exception in income-tax and other incentives.
- (d) Giving subsidies lead to dependence. Therefore, avoid it scrupulously. By way of income-generation through vocational training, soft loans to self-help groups (SHGs), self-employment opportunities, creating jobs, etc., let the poor earn and live with dignity. Don't give them fish, but teach them how to catch fish!



**Diagram II:** *Poverty: it's Environmental, Social, Economic, Health, Nutritional & Psychological aspects*



2. Close monitoring of implementation of nutrition programmes with particular attention to resource constraints, institutional bottlenecks or any other matter affecting service delivery: Nutrition security programmes should be reviewed by the experts for efficacy, feasibility, ability of the system to deliver

the goods, adverse effects and possible dangers, appropriateness, wider application, sustainability and cost-effectiveness. We have national programme for prevention and control of nutritional anaemia in pregnant women. The pregnant women are expected to get and consume 100 tablets of



iron-folic acid tablets during the antenatal period. Despite decades of intervention, today over 70 per cent of pregnant women at the time of delivery are anaemic. Such programmes should be scrapped in preference to treat every anaemic woman, monitor till cure, and improve diet. It is well established that as soon as economic condition improves, diet improves nutrition and incidence of nutritional deficiency disorders falls drastically. The best example is almost disappearance of vitamin A deficiency disorders in last three decades. This is also true of severe forms of undernutrition such as Marasmus and Kwashiorkor. Mid-day meal in the schools has become fashionable programme, although evaluation of such programmes has failed to demonstrate any benefits in physical growths, etc.

As a basic policy none of the nutrients should be used as supplements under our nutrition security intervention programme. In the long run, the only rational and common sense approach is to improve the diet by way of proper selection of foods. There should be no blind continuation of the nutrition intervention, yearly evaluation is essential.

Another ignored area is overnutrition and new trends in food habits which are dangerous in the long run. If this is not curbed and nipped in bud, we will be bearing high burden of non-communicable diseases in near future. The Mission should, therefore, should take futuristic view and curb and control harmful fashions of soft sparkling drinks like Coke, etc., ready-to-eat food with high sugar, salt and fat content – restriction of quantities; quality in terms of micro-nutrients and antioxidants, etc.; detail labels; and even banning some items.

### *3. Evolve mechanism for coordination of all the nutrition related programmes both at the policy and implementation levels:*

This should be the most critical and inevitable function of the Mission. In fact, many of the so-called *nutrition related* programmes are the core elements for nutrition security of our people. Food production is looked after Ministry of Agriculture. Apart from the cultivation of staple energy producing foods such as cereals, nutrition security demands adequate production of the protective foods such as pulses and legumes, vegetables and fruits, milk, condiments, etc. This and oil seeds need immediate priority. Storage is poor and result is huge losses. Transportation increases the cost. Mission should ensure that

locally produced foods should be locally distributed to all the poor families below a well defined cut-off point. There should be local procurement and storage for local public distribution system to be totally managed by the PRIs and villagers. There is no justification in centralization, except for promotion of corrupt practices and inefficiency. Fuel is another issue and the Mission should ensure that in about five years only the Gas and Electricity are made available and used exclusively. Rural and urban Development Ministries should give highest priority to ensure that in about two years, all the poor families below a well defined cut-off point are assured regular income throughout the year so that they can pay for all the family's basic needs of shelter, clothes, food, health, education, etc. They should be able to live with dignity and pride. Even the scheme such as unemployment allowance for such families is desirable because with our well known inefficiency, we may not be fully successful in ensuring adequate income generation by the poor. Such expenses may be recovered from the officials and politicians whose failure resulted in the shortages. This is only an example to indicate the direction. Nutrition Mission or PMO should have special cell to look into this vital role.

Health Ministry should be concerned with nutrition as it is one of the basic determinants of health. Never-the-less, nothing is done except some most ineffective interventions against anaemia, etc. Sanitation, food hygiene, personal hygiene, common ailments such as fever and diarrhoea, etc., play important role in making the marginal but otherwise adequate food intake inadequate because of higher nutrition demands. This is not only the major health factor that leads to undernourishment of children, but also form the major causes of so-called 'starvation deaths' of today. Immediate cause of death in such cases is either diarrhoea or upper respiratory infection causing pneumonia or other acute infections. The undernourished children become vulnerable to suffer from these infections because of their low resistance and weak immune system. Primary health care inputs are therefore essential in India, as an essential component of Nutrition Security. It is another matter that our so-called Health Services are in reality ill-health services of poor quality.

For unhealthy food and food habits and preferences, it is vital to be proactive and ensure that needful is done by the Food Department, Food Industry, and Prevention of Air and Pollution Board, Consumer's Forum, etc.



*4. Conduct of evaluation and impact studies of the programmes and identify mid-course corrections in strategies and implementation issues:*

This is very important point. However, my long experience with the Government functioning, this type of thinking and management procedure is clearly outside its culture and corrupt practices and vested interests. This policing task is best assigned to capable, social and or activist mind-set, trustworthy voluntary organizations. Their findings should not come under bureaucratic review and can only be examined, if need be, by professional organizations such as Nutrition Foundation of India, New Delhi. The recommendations should be mandatory on the Government. In is my experience, the Ministries and Government mostly keeping the reports gathering dust. If action is taken most important & critical recommendations that matter most are shelved at minus 20 degrees C. and the minor recommendations which are of no significance if the critical are not implemented, are accepted.

*Item 5 of the terms of Reference of the National Nutrition Mission:*

Currently, we have more than enough of scientific and social knowledge and technology which are required for providing not only the primary health care to our people, but also that is required for the secondary and tertiary health (really medical) care. Our problem is of effective implementation and getting desired impact. The type of research that we need is what is known as Health Services or Systems Research, Operations Research and R&D mode of functioning of our administration. Administrative reforms are other inputs which we put on back-burners. In brief, nutrition security is not just adequate and proper food, but a much wider and complex issue. Any narrow approach and strategy will not serve the purpose, the canvass has to be broad and several governmental, corporate and private organizations and the people, especially the poor shall have to play their roles harmoniously and sustainability.

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(In response to letter No. CE-3 of 30<sup>th</sup> August 2004 from Shri Alok Mukhopadhyay, Member, Executive Committee, National Nutrition Mission, Government of India.)

## 2. Foods Fads, Facts and Ambiguity

*It is truly a great privilege to have been invited to contribute to the Festschrift for Dr. Gopalan on the occasion of his completing 90 years of age. I met him first in 1964 at National Institute of Nutrition, Hyderabad, during a seminar. I now meet him every time I go to Delhi. He is ever green and true scientist He has countered effects of aging with functional alertness and creative activity. He is one who authoritatively talks of benefits of good nutrition in enhancing the body's resistance to infections, degenerative diseases and cancer; and its ability to withstand the toxic effects of pollutants. He still continues to contribute his proposals and comments in the Bulletin of the Nutrition Foundation of India, and critically reviews important issues of the status of public nutrition in India. How great! Salutations to him for his contributions!*

**INTRODUCTION** Every form of life needs nutrition for survival. Naturally, during the process of evolution of life, the potential sources and process of nourishment got transcribed on the genes. The choice of nutrients is genetically determined. While the nutrients for plants are inorganic, animals depend largely on organic nutrients for energy and growth. Herbivorous and carnivorous animals feed on grass and meat, respectively. The mothers, when rearing their young, give practical training about food to their off-spring. Humans are no exception. While the human being is basically frugivorous, grass cannot be digested, but meat can. Nutrients are obtained through food, which is available in the environment. Over the million and half years of their existence on this planet, human beings have encountered the extremes of environment and habitat from the Equator to the Poles, and from season

to season. During this long period, primitive Man explored and exploited Nature. Instinct led to a realization of the complex relationship of foods, diet and nutrition.

By using imagination and unbounded intelligence, by trial and error, and by critical evaluation, Man could select the right type of foods. Different locally available foods were carefully tested. Recognizing that no single foodstuff would result in proper nutrition, many foods were combined in sufficient quantity and proper proportions. Thus, ancient Man discovered and evolved diets to get all the necessary items required for proper nourishment of the body. Ecological interrelationship between plants and animals is reflected in the formation of the 'food-chain'. Man is a unit of ecosystem and harbours millions of symbiotic microbes. 'Human Microbiome Project' of the National Institutes of Health, USA, suggests that, while human genes in the human body are 18,000 to 20,000 in number, microbial genes, over 3 million, are added on. What does that imply? Benefits?

Body's genetic structure interacts with the environment and adjusts itself. Thus, physiological and metabolic adaptations take place. By virtue of such mechanisms, local foods could be digested and assimilated by the opening or closing of appropriate metabolic pathways. Thus, Eskimos near the North Pole derive their supply of B vitamins indigenously, probably from the intestinal bacterial flora, while those living in the tropical areas get them also from green vegetables, etc. Hibernation is a biological mechanism enabling to pass the winter or resting stage.

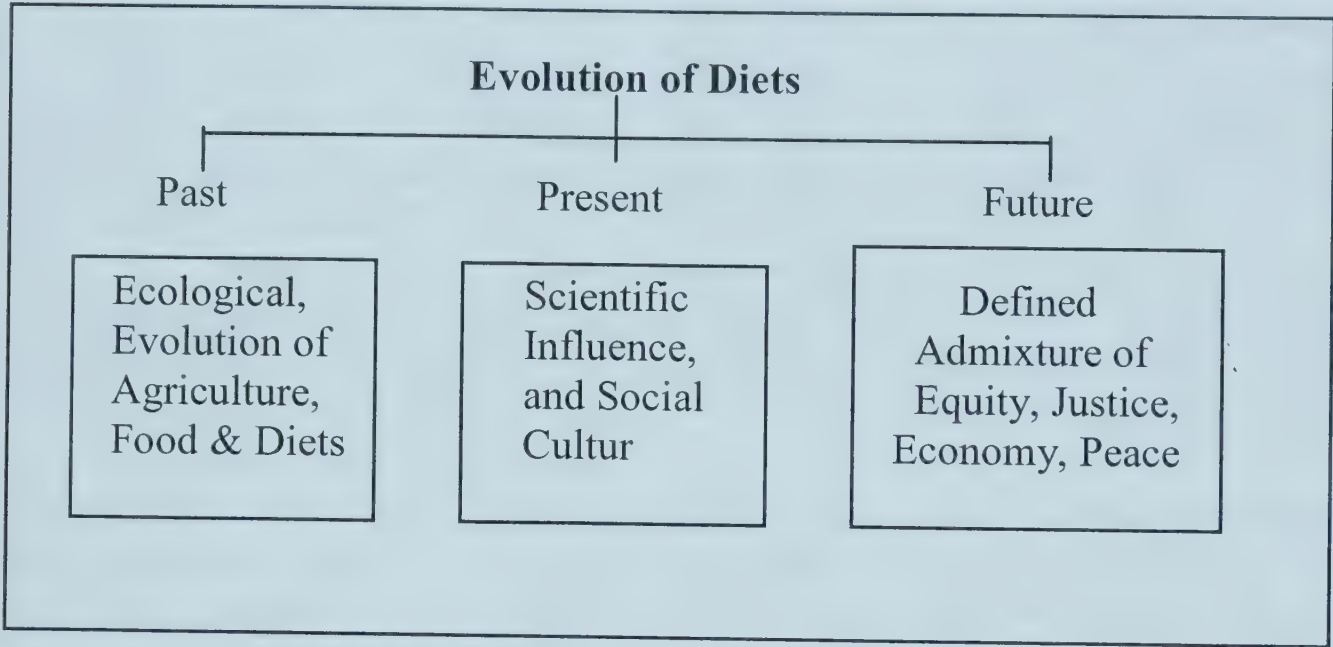


In ancient times, ascetics are reported to have practised penance for long periods of time without eating any food. Did they acquire ability to hibernate?

**Traditional Wisdom:** It is but natural that Man’s ‘foods’ and ‘diets’ demonstrate socio-cultural and geographic variations. This successful adaptation to different ecological situations on the earth was

responsible for human survival even before development of agriculture. Consequently, the variety of foods that is available to man is enormous. Another type of variation, which has been institutionalized by all societies, is manifested by different foods and courses for breakfast, lunch, dinner, snacks, and menus for festive occasions. Phases of dietetic evolution are shown in Figure 1.

Figure 1: *Evolution of Human Diets*



In retrospect, the scientific soundness of the traditional Indian diets is amazing. The customary food combinations such as cereals plus pulses, and the staggering number of recipes, present the wonders of our cultural heritage. The inclusion of spices and condiments in the diet, probably because of awareness of their protective and medicinal usefulness, was a marvel. ‘Curry-powders or Masalas’ evolved with the culinary art. This should humble today’s ‘dieticians’. Most of dietetic practices, food habits and other related traditions and customs, have stood the test of time. Importance of micro-nutrients, fibre, anti-oxidants & flovonoids has been recently emphasized, but even a cursory

look reveals that several of our common foods are rich in them. About five decades ago, Sukhatme P.V. exploded the myth of ‘protein gap’ by proving that the problem was of ‘food-gap’. In extending this further, nutrition security truly lies in our traditional foods and diets.

**Food fads:** Because of ambiguity, fads associated with food are abundant. What to eat and what not to eat? Which foods are healthy and which foods can even harm? One man’s food may be a deadly poison for another, as in the case of allergy or idiosyncrasy. Reader’s Digest has published a book, “Foods that Harm and Foods that Heal” with a rider, “consult physician for specific health problem”.

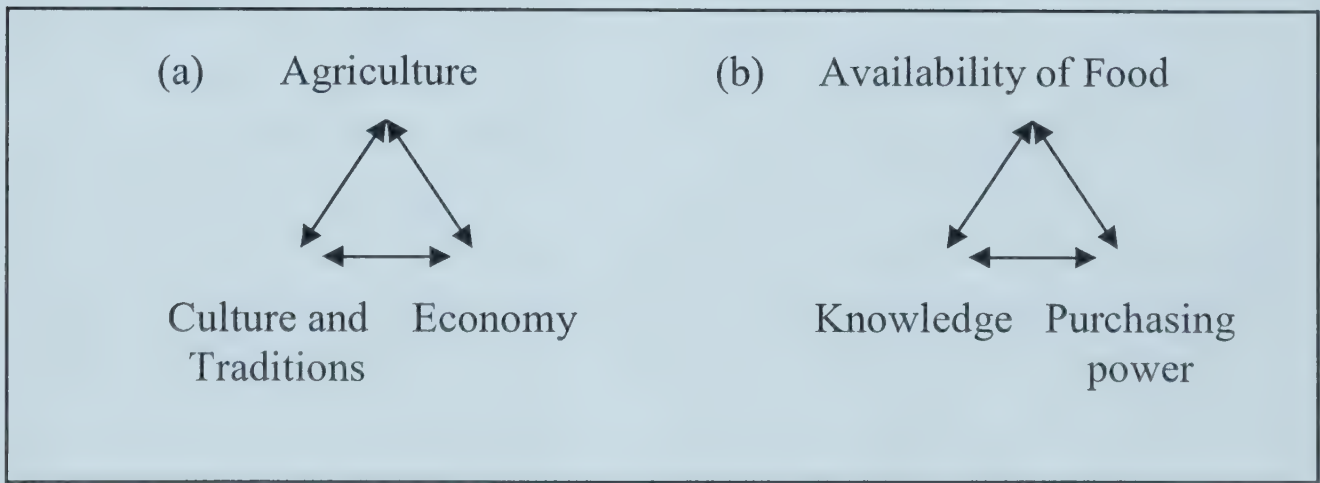
Food fads such as ‘*excess of sweets cause diabetes*’ are too many to list. There are contradictions, inconsistencies and vagueness. The social and cultural dilemmas have become critical vis-à-vis new scientific knowledge on nutritional value of foods. The reasons are biological, ecological, historical, geographical, socio-cultural, commercial marketing of foods and globalization of trade.

**Public health nutrition:** Human nutrition is in the phase of being under the influence of science and technology. In comparison to the cultural and conventional knowledge about food and nutrition, scientific and technological knowledge on nutrition is only about 250 years old and grossly incomplete. It lacks comprehensiveness. Ayurvedic concepts of nutrition and food cannot be ignored just because one fails to

understand them, e.g., foods designated as ‘cold’ and ‘hot’, and incompatible foods: fruits and milk. There is need to recognize gaps in understanding and plan multi-disciplinary and integrated studies. Several scientific disciplines such as agriculture, economics, biochemistry, medicine, food technology, anthropology, health, epidemiology, etc., are concerned with some aspect of nutrition. The scientists tend to work in isolation. There is no common platform for collaboration and coordination.

The factors that determine human nutrition are shown in figure 2. These are inter-related and variable at the family and community levels. Nutrition security is of political and social concern. All the nutrition problems can be traced to one or more of these basic factors.

**Figure 2: Triads of Nutrition Determinants**






In public health, problems such as infestations like malaria, infections like tuberculosis, malnutrition like anaemia and low weight, etc., have rather simple solutions. However, determinants of disorders such as diabetes, coronary heart disease, obesity, hypertension and cancer are complex. Basic issues are insulin resistance, atherosclerosis, foetal malnutrition, unhealthy behaviour and life-

styles. Unlike the developed countries and affluent societies, developing countries carry the double burden of infections and non-communicable diseases. Interventions such as primary health care, equity, behaviour change, reforms in life-styles, etc., are being badly managed. Poverty is the primary cause (and also effect) of emaciation and stunted growth, just as affluence is of obesity. There are globally



new and emerging infections. What path should one take?

In management of public health, one has to face difficulty in decision making. The selection of effective intervention to control and prevent lathyrism is one of such instance. What is best?  to ban the cultivation and/or use of Kesari/Lakhi dal, or  to educate people to limit the consumption of this dal to less than 25% of the total food, or  to detoxify Lakhi dal by boiling or soaking it in hot water for some hours and throwing away the supernatant fluid?

Another example is of media sensationalizing the deaths of under/malnourished children, using terms like “hunger deaths”. Government and health departments respond by declaring nutritional interventions. However, the impact is never seen. While under-nourishment is the underlying cause of such deaths, immediate cause of death is mostly respiratory or alimentary infection. These causes are ignored always.

**Food Hygiene:** Food hygiene is a subject of concern to health authorities because of possible neglect and lapses by roadside vendors, eating houses and even the food industry. Are such foods safe? Are such food items prepared under hygienic conditions? Are good raw materials used? Are the chemicals added safe for health in the long run? Are the foods free of any contamination? One does not know. At the same time, some of the old family traditions provide us with examples of excellence of applied microbiology and asepsis in dietetics, e.g., the vanishing custom of observing *sovale* - type of isolation or sanctity, as a part of food hygiene. This custom originated unquestionably as an aseptic technique

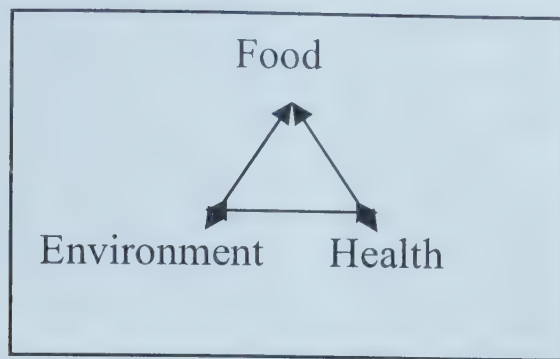
without the knowledge of which the surgical procedures such as reconstruction of the nose would never have been successful in ancient India. Old is gold. Traditions such as bathing and wearing self-washed clothes before cooking; not touching others while cooking, handling and serving food; discarding (contaminated) food from the servicing plate, if it is touched by someone other than the server; etc., are sound hygienic practices.

Personal hygiene is of great significance microbiologically. Washing of hands before eating food or after visiting toilet is not just cleanliness, but a way of removing pathogenic micro-organisms, and ova and cysts of helminthes. When one asks question such as, do you wash your hands clean? Everyone says ‘yes’ readily. But there is a gradation of cleanliness and one can see the manner in which hands are washed before taking meals and after eating oily food. Washing hands thoroughly is like using a clean spoon.

Human nutrition cannot be considered in isolation from the environment. Many dieticians tend to ignore this reality. Environment influences both food and health, and food intake determines health status (Figure 3). Physical environment can adversely or favourably influence human nutrition in many ways. The Indian Railways pollute the soil by directly depositing 51,000 to 71,500 metric tons of human faeces on the tracts every day. Important points that call for collaboration and cooperation of the agriculture, food, rural development, and other sectors are: agricultural practices, variable requirements of nutrition, different dietary practices, contamination of food and water, Man being at the end of food chain, and the role of pests.



**Figure 3: *Inter-relationship between Food, Environment and Health***



**Research on Nutrition:** In a consideration of public health practice and community nutrition, it is interesting to examine contributions of scientific research on nutrition. The findings are: ➤ locally available foods should be used, ➤ a vegetarian diet is as nourishing as non-vegetarian one, ➤ a mixture of cereals and pulses, and variations in foods make diets nutritious, and ➤ breast milk is the best food for infants. Apart from confirmation, have scientists really found anything new after spending time, efforts and money to rediscover already known facts and practices?

Breast-feeding is widely prevalent in Bharat and even in India at a lower level. In our study over 88 per cent of the infants were breast-fed and the others could not either because of poor milk secretion or illness of the mother. Lactation was generally prolonged, varying in duration from 6 months to 3½ years. About half of the mothers discarded the colostrum, while others fed it to the new born. Commercial propaganda on humanized milk and baby foods tends to discourage breast-feeding practice. Branded baby foods are expensive and absolutely unnecessary. UNICEF and WHO (World Health Organization) have special programmes to popularize breast-feeding. Nature evolved mammals so as to ensure survival of the infants through breast-feeding! Nature's ingenuity is

amazing in this regard; newborn has the inborn ability to search for the mother's nipple and feed itself. However, the irrational use of vitamins, glucose, proteins, protective foods, goes on unabated. Rationalization is still a distant dream.

Birth weight is an indicator of health of a baby. The gold standards for comparison are, however, unscientific. Since the recommended weight of 2,500 grams was based on 'formula fed' infants, WHO revised this to a lower scale. Still there are issues such as ethnicity. Is it right to expect birth weight of a newborn Naga to be the same as that of a new-born Punjabi? Gender difference in weights of male and female is obvious. It is strange, therefore, that cut-off weight at birth is the same for male and female newborn! Is it justified to label normal babies and children as under-weighted or malnourished judged on the basis of an incorrect reference norm?

**Shortcomings of current nutrition programmes in India:** Many activities are being undertaken in good faith, but without sufficient attention to their impact. ICDS has failed in ensuring proper growth and development of infants and toddlers. Despite decades of National Programme for Prevention of Nutritional Anaemia, a majority of pregnant women remain anaemic at the time of delivery.



Paradoxically even with very poor management of vitamin A supplementation in young children, night blindness has virtually disappeared and xerosis is rare. Marasmus and Kwashiorkor are rarely encountered. The 2004 Atlas of the Sustainability of Food Security in India startlingly shows lack of relation between food security and poverty.

The outstanding feature of national nutrition programmes is lack of inter-sectoral coordination, collaboration and cooperation. Rural Health Mission is under the Health Ministry; Integrated Child Development Services (ICDS) Programme is under the Ministry of Social Welfare; Grow More Food and fortification programmes are under the Food Ministry; Mid-day meal is with Education Ministry; and the programme of Food for Work is with the Ministry of Rural Development. There are many management problems in timely and adequate supplies and storage facilities. Beneficiaries are selected according to the convenience of the staff, easy approachability, or influence. The needy, such as poor families, habitations that are difficult to access, preschool-age children and pregnant women are often not served. In mid-day meal programmes, the problem of substitution can be solved if the staple food is avoided as supplement. Popular snacks should be provided instead, as these are not be equated with a meal. There are many local recipes for the snacks, and these should be used imaginatively. Feeding children at centralized locations has not solved the problem of malnutrition. It has several disadvantages such as risk of infection and food poisoning, inhibiting self-reliance, building an attitude of begging and helplessness, harming self-respect, and most of all, potential of inflicting Psycho-

logical and cultural trauma on young children of tender age. In view of anthropological factors, it is desirable to consider a family as a unit for nutritional programmes, instead of targeting an individual as at present. This is also true for take-home foods, food for work and food subsidy. This will minimize, if not eliminate, the shortcomings listed earlier. Centralized programmes have many problems. There is no alternative to decentralizing feeding programmes.

**Anthropological facets:** Sharing food is a cultural characteristic of India and cannot be ignored. Secondly, no single food can be universally suitable for all children between 6 months and 6 years. Food habits and tastes differ from family to family. When food is distributed at home, the variations for age, likes and dislikes, and habits are automatically taken care of. The women know the craft and there is no need to teach them recipes. It has also been shown that the sharing of food has no adverse effects in respect of malnourished children.

Many diets and items of food are associated with religious festivals and social functions. However, now they are available at all times. In Western societies decoration and style of serving food often get more attention than the food itself. In India, there is '*thali*', which integrates all the courses. The first serving indicates the menu. One can have second or more helpings. Foods are chosen based on the value system, the occasion, preferences and tradition. If one evaluates the meals poor people prepare on occasions such as weddings, it is clear that they have a good concept of what constitutes a healthy and balanced diet. It is only that they cannot afford to eat such meals regularly.



The custom of religious fasting encourages consumption of foods other than conventional ones. This kind of 'fasting' will not serve to prevent obesity. Our survey of middle-class families in Pune in 1962 revealed that on an average the consumption of calories and proteins was significantly higher on the day of 'fasting'. This was because of more consumption of milk and groundnuts than on other days. Given the status that food has in life, it is also used for cultural and religious purposes, e.g.,

- ✍ a lemon on a string of green chilies is tied to vehicles to ward off accidents;
- ✍ a cup-full of tea is discarded by roadside stalls before service to the customers begin;
- ✍ rice grains, coloured or otherwise, are used during blessing at Hindu religious functions;
- ✍ food is offered to God by casting it in a flame; and
- ✍ a coconut is broken at auspicious events. When I see champagne being squirted around in celebration, I feel uneasy. Nonetheless, it is all a question of culture.

**Commercial exploitation:** Vitamins such as vitamin C were discovered at a time when deprivation of food was extreme. Many vitamins were subsequently discovered. The discovery of the vitamins has, however, resulted in commercial exploitation rather than promotion of consumption of appropriate foods. Dr. Gopalan had stated that the strategy of relying on massive doses of synthetic vitamin A for the control of night-blindness is inappropriate. Born out of recent studies on metabolism, new targets have become available for commercial exploitation, viz. fibre, anti-oxidants and bio-flovonoids. Their role has been

identified. The new term, "micro-nutrients", is frequently used. However, all these nutrients are adequately available in wide variety of vegetables, fruits and beverages such as black tea and wines. These form the part of traditional diets. Unfortunately, these discoveries have provided new and sophisticated tools to food industry for exploiting people. The consumption of preparations containing micro-nutrients, fibre, anti-oxidants and bio-flovonoids is on increase. Nevertheless, the rich don't need these and the poor need a balanced diet. An excess of anti-oxidants or fibre may even be harmful. Although efficacy of vitamin E has not been established, its sale is rampant. Emphasis on the need to consume a balanced diet cannot be allowed to fade into the background. These new foods have benefited the manufacturers rather than the health seekers and patients.

**Man-made scenario:** The basic problem of nutrition is Man himself. In the final analysis, politics and the power structure govern the food policy, production, distribution and pricing. Social and cultural factors are man-made and profoundly influence nutrition, choice of foods, feeding pattern, diet, etc. Examples include:

- ✍ cash crops verses cereals,
- ✍ irrigation, soil chemistry,
- ✍ storage & distribution of food,
- ✍ insanitation and poor hygiene,
- ✍ choice of food vis-à-vis nutritional value, economics,
- ✍ commercial exploitation,
- ✍ mind-set and behaviour,
- ✍ adulteration,
- ✍ poverty, ignorance,
- ✍ brainwashing by media,
- ✍ and
- ✍ food supplementation.



### Modern era – progress or regression?

In modern lifestyles, the choice of foods and eating behaviours has undergone a perceptible change (for the worse). Public nutrition has become topsy-turvy because of economic, occupational, social, migration-related, environmental, psychological and other reasons. Peculiar and extraordinary eating habits have become the order of the day. Eating habits are diversified and are influenced by taboos and customs, fads and fashions, religious teaching, scientific knowledge, likes and dislike, eccentric and idiosyncratic patterns, aggressive marketing of processed foods, the proliferation of restaurants, professional demands, health status and other compulsions.

People eat fewer meals at home, and eating out is on the increase. Disadvantages of eating out are:

- ✍ overeating,
- ✍ risk of eating mishandled, unsafe,
- ✍ inferior quality, or adulterated food, high intake of salt, sugar and fats; and
- ✍ gross reduction of content of protective foods.

Apart from eating out, another curse of so-called modernization is a significant increase in consumption of alcoholic drinks. The food industry, hotels and restaurants have come to stay. Many exotic foods are advertised. Attractively packed processed foods or ready-to-eat snacks or 'junk foods', baby foods, 'tonics', branded beverages, etc., have reached even remote places. Artificial sweeteners like Aspartame are present in many aerated soft drinks. These can cause metabolic acidosis. Long term consumers of such drinks have suffered from muscle spasm and pain with illness resembling multiple sclerosis. Tonics are superfluous despite increased appetite due to alcohol

they contains. Apart from exercise and yoga, some health clubs have started nutrition services for weight reduction and dietary care of diabetes, and coronary heart disease. There is no quality control at many of these centres, and the services may not be scientifically correct.

Advances in science and technology often tend to make simple and cheaper things more complex and expensive. Attractively packed processed and fortified foods charm customers. The sophisticated products such as 'ready-to-eat' are used by the privileged and unfortunately become status symbols. There is tendency to follow the examples set by the rich, and limited financial resources of the underprivileged and poor are thereby wasted. Food adulteration is on increase. Primary support for food adulteration comes from people who are eager to purchase food, which is cheaper than the market rate. When something is offered at unreasonably low price, one should suspect adulteration or doubt wholesomeness of the food. Food malls have started offering cheaper vegetables. Purchasing discounted food should be resisted because such food may not be wholesome or may contain adulterants. Whiter dal, pale peas and colourless sweets taste as good and are as nutritious as highly priced fortified commodities. Poverty level estimates should not be based on a single parameter such as expenditure on food. Empowerment, equity and social justice are at the root of poverty and mal-nourishment. Even basic needs such as food, shelter, employment and health are not available. There is a sense of urgency worldwide about the need to tackle these problems on a war footing.

**Obesity:** Obesity and overweight are caused by excess intake of food (calories)



over a long duration. By a rule of thumb, the weight of an individual at the age of 21 is his/her ideal weight. Extra weight gained thereafter, when active growth ceases, is due to fat deposits and is a signal that there is a need to control weight. Such weight gain is the earliest sign of health losing ground. Over-weight or obesity is indicated by high BMI or high abdomen-to-hip ratio. It is good to aim a BMI of 18.5 to 20. Weight-loss programmes are advertised claiming that 10 kg of weight can be lost in three weeks or even in 24 hours! This is unscientific and fraudulent. The rate of weight reduction should be slow, say one or two kg a month. This is possible by eating less caloric-food, not eating out, brisk walking and exercise. Sure enough, some advise that one should 'fill the belly and reduce'. Many of those who lose weight regain it in about six months. Special care is needed to maintain the loss achieved. Some individuals are obese despite low food intake. The endocrine system may be at fault or there may be metabolic disorders. Drugs and surgery for obesity are not only of doubtful value, but may even be harmful. It is observed that many dieticians tend to prescribe diets *de novo*. Compliance with such diets is difficult and generally short-lived. Sooner or later one reverts to usual diet. This is why majority of obese person who are 'dieting' regain the lost weight within a period of six months or so, and diabetic persons are unable to control blood-sugar levels. It is easy and practical to modify one's customary/usual diet. Any drastic change cannot be sustained. In adult diabetics, there is need for demystification of the so-called 'diabetic diet' because it is just usual food with some restrictions and modifications.

Tables giving composition of foods are used to estimate nutritional values of

either raw or cooked food. However, there are pitfalls. Unless the limitations of such tables are clearly understood, the interpretation and the conclusions drawn may not be valid. The caloric needs of an individual may differ markedly from allowance recommended. In view of variations in water content, values for the proximate principles are more reliable than those for vegetables and fruits. Values for cereals and pulses are more reliable than those for vitamins and minerals. Nevertheless these tables are useful, if used and interpreted intelligently.

**Self-reliance:** The basic strategy is to eat traditional diets and wholesome food. The commandments to follow are:

- ✍ moderation is the golden rule – do not eat much of any food.
- ✍ do not to reject any food, eat at least a little.
- ✍ eat one portion of all foods, the essence of a balanced diet is variety; the more the variety, better is the nourishment; eating different kinds of food is desirable.
- ✍ all vegetable oils {except hydrogenated} are good in moderate quantity; use different oils by rotation.
- ✍ regularity of meals and having interval of more than two hours between successive meals avoids disturbance in digestion.
- ✍ on special occasion one may eat more than usual and enjoy it without any guilt; it will be necessary to compensate later by eating light meals



- ✦ avoid supplementation and fortified food.
- ✦ avoid indulgence with any one food/supplement that is deemed healthful; both omega-6 and omega-3 fatty acids are required by the body.
- ✦ do not blindly follow the advice of consultants or the media.
- ✦ avoid soft drinks and processed foods.
- ✦ eat least amounts of foods rich in sugar, fat and salt, e.g., dessert, fried food, cream, and pickles.
- ✦ instead of two square meals, eat five to six times a day without increasing total caloric intake.
- ✦ never waste money on commercially marketed micro-nutrients, fibre, antioxidants and flavonoids because all

are present widely in condiments, spices, vegetables, fruits, germinated legumes, whole pulses, garlic, flaxseeds (*Javas*), fenugreek seeds (*Methi*) and tea without milk, etc.; and thus are adequately present in traditional diets.

- ✦ there is no need to force oneself drink eight or more glasses of water daily; adequacy of water is indicated by normal urine output and absence of thirst.

**Conclusion:** In nutshell, everyone should understand that the answer is clear. For good nutrition it is ideal to eat traditional diets and foods. Our 'normal foods' contain not only all the known nutrients, but also some unknown ones awaiting discovery and perhaps many other that will never be known. Traditional wisdom will also protect and save 'modern *homo sapiens* from 'mad man disease'!

## Bibliography:

1. Davison, Sir Stanley, Meiklejohn, A.P., and Passmore, R., Human Nutrition and Dietetics, Ed. I.E. and E. Livingstone Ltd., Edinburgh and London, 1959.
2. Deodhar, N.S., Newer Concepts in Nutrition and Their Implications for Policy, Ed. Sukhatme, P.V., Maharashtra Association for the Cultivation of Science – Research Institute, Pune, Section IV, pp 195-204, 1982.
3. Deodhar, N.S., Food, Environment, Pune Journal of Continuing Health Education, No. 38, July 1981.
4. Deodhar, N.S., Relevance of Environment to Human Nutrition, Group Nutrition Intervention Management Manual, Food & Nutrition Board, Dept. of Food, Min. of Agriculture, GOI, pp 28-37, 1982.
5. Deodhar, N.S., Social and Cultural Factors Conditioning Infant Feeding, Ind. J. of Medical Sciences, 21: 768 Nov. 1967.
6. Deodhar, N.S., Malnutrition and Food Adulteration, M.M.J., 20: 153, July 1973.
7. ICMR, Nutrition Advisory Committee of the Indian Research Fund Association, Subcommittee Report, Government of India, 1944.
8. Indian Express, Surprises in India hunger map, February 6, 2004.
9. Narasinga Rao BS. Use of  $\beta$ -Carotene Rich Foods for Combating Vitamin A Deficiency, NFI Bulletin, 12(3), July 1991.



10. Nature, National Institutes of Health, quoted from Sunday Express, Pune, April 13, 2008: pp 13.
11. Passi, Santosh Jain, Consumption of Dietary Fibre Rich Foods – A Preventive Strategy, Everyman's Science, **XXXIV**, (2), 1999.
12. Patwardhan, V.N., Ranganathan, S., The Nutritive Value of Indian Foods and The Planning of Satisfactory Diets, Indian Research Fund Association, Health Bulletin No. 23, Government of India Press, Nasi, 1956...
13. Pune Times, Times of India, Friday, April 11, 2008, pp 1.
14. Rao R, Diet Manual, A compilation of diets recommended in Health and Diseases, Government of Maharashtra, Bombay, 1961
15. Reddy Vinodini, New Growth Norms for Nutrit. Asse.of Children, NIF Bulletin, **27** (4), October 2006.
16. Sathe, P.V., Personal Communication, Subashnager, Pune-411002.
17. WHO, Regional Committee for South East Asia, (1961), 14<sup>th</sup> Session, The role of public health departments in the improvement of nutrition, SEA/NUT/10, Regional Office for SEA of World Health Organization, New Delhi.

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Science for Health and Nutrition, A Feschrift for Dr. C. Gopalan, Nutrition Foundation of India, New Delhi, 2008, pp 43-53.





## **Part E**

# **Demography and Population**







1.

NATIONAL POPULATION COMMISSION

1<sup>st</sup> MEETING ON 22-7-2000

**Introduction:** Growth of a population is a bio-social phenomenon. Its growth rate is the function of fertility. Bio-socially, fertility level is determined by capacity to survive and degree of welfare of the individuals belonging to that society. Health statistics of India clearly reveal that the survival, fertility and welfare of our people are closely associated with their socio-economic status.

Table 1 shows the outcome of the World Bank sponsored 1992-93 sample survey covering over five lakh population.

**Table 1: India 1992-93 : Health, Nutrition, Population & Poverty in Total Population**  
(Sample size = 5,00,755)

Socio-economic Status	Poorest	Richest	Average
<i>Indicator</i>			
IMR/1000 births	109.2	44.0	86.3
>5 MR/1000 births	154.7	54.3	118.8
Total Fertility Rate	4.1	2.1	3.4
Age Specific Fertility Rate/1000 women, 15-19 yr.	135	45	116
Immunization % Coverage for all vaccines, Not covered at all	17.1 48.4	65.0 7.9	35.4 30.0
Delivery Attended by a Trained Person	11.9 %	78.7 %	34.3 %
Use of Contraceptives by Married Women, %	24.9	50.6	36.5

In light of reality, what should be our approach and action programmes to arrest rapid growth of population, especially in the Northern States?

- Basic strategy should be alleviation of poverty.
- Concentrate on the welfare of families below poverty-line and give highest priority to places where the problem is the highest, viz., Uttar Pradesh, Bihar, Madhya Pradesh and Rajasthan. This will have a significant and lasting effect in lowering fertility.
- Poverty is essentially a long-term or chronic deprivation syndrome. Poverty is both the effect &

cause of several factors. It is not just socio-economic hardship and social injustice. In order to have desired effect on poverty reduction, focused efforts of the Government, corporate, private and voluntary sectors will be necessary. All departments and agencies of the Governments and the PRIs will have to be activated to do their lot effectively and in a sustainable way.

- Winding down Department of Family Welfare at the Central and State levels. In practice, this would mean to merge it with the Health Department (to be rightly called Public Health Department). This will considerably and surely help to ensure that the responsibility for controlling population by reduction in fertility becomes universal and taken over by every concerned Government department, agency and sector. Role of every Ministry and Department of Government should be identified & that Ministry/Department should be made accountable for their contribution towards lowering fertility and controlling population growth. Special efforts are necessary to ensure that various programmes and interventions reach all the families below the poverty line, irrespective of their location, social and occupational status, etc.
- It will be the function of the National Commission for Population to monitor, direct, and guide the State Governments for effective implementation of the various programmes and specific interventions for fertility control and poverty alleviation. States should be encouraged to set-up State Commission for Population. Statewise subcommittees should be nominated for the supportive and monitoring operations.
- Illustrative roles of selected Ministries and Departments: At the Central and State Governments, joint exercise is necessary, separately with each Ministry & departments, to define the specific roles vis-à-vis fertility control and reach agreement on effective implementation, review and reaching the objectives.

1. Public Health Department :

- a. To promote and provide counselling, consultation and contraceptive services, especially to all families below poverty-line.



- b. To take steps, effectively and urgently, to ensure that all unmet needs are met.
- c. To ensure that the full package of primary health care is provided to all the families below the poverty line, irrespective of their location, social and occupational status, etc.
- d. To strengthen public health services in general, covering all its dimensions.

2. Education Department :

- a. To take a time bound programme to provide primary education to all male and female children of all the families below the poverty-line, irrespective of their location, social and occupational status, etc.
- b. To plan & implement schemes to encourage the children from the families below the poverty-line, to continue education up to 10<sup>th</sup> standard initially and then up to 12<sup>th</sup> level.

C Special schemes should be provided for various kinds of vocational training having income-generating potential. Children from the families below the poverty-line, especially those whose performance in the schools is poor or those with necessary aptitude, should be given highest priority. Free of cost placement outside their place of residence should be provided, if local facility is poor or not available.

3. Department of Rural Development :

- a. To ensure gainful employment and/or adequate income generation to all the families below the poverty-line. Income should be adequate

and sustained at appropriate level to be determined annually.

- b. To provide basic healthy environment, especially safe drinking water and disposal of excreta, to all families below the poverty-line.

4. Food Department :

To ensure nutrition security through public distribution system and/or other manner, to all the families below the poverty-line

5. Department of Works and Housing :

To provide healthy housing and to ensure environmental hygiene to the poor, especially those families below the poverty-line.

6. Department of Communications :

To provide communication facilities for emergent situations, road transport, telephone, etc., within the access of the families below the poverty-line.

7. General Adminis. And Revenue Department:

- a. To ensure that social injustice and discrimination are undone, especially in respect of the poor.
- b. To restore the rights and property unlawfully taken away from the families below the poverty-line.
- c. To discourage crime & antisocial activities among the poor, by improving their lot and providing acceptable alternatives.

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Note prepared for the meeting.

# **Part F**

## **Epidemiology**





## 1. A letter to Prof. N.K. Bhide, AIIMS, New Delhi (Poona, 16<sup>th</sup> August 1966)

My Dear Narayan,

I hope our telegram and letter, both reached you. We have by now, total of 72 cases of the "Polyuria Syndrome" reported to us.

On epidemiological studies, it is now fairly well clear that it may be some very localized, self-limiting (with complete recovery) new infection – or more likely *some toxin or poison acting either as Anti-ADH or on the renal tubules*. What can do this?, a virus, a fungus, or any other micro-organism, or a poison or toxin?

Incubation period seems to be 1 to 3 weeks – or multiple of 1 to 2 weeks. This poses a difficulty in realizing cause and effect relationship of something in the past – not very near so as to recall easily – nor perhaps very out of the way or unusual or noticeable (easily) event in life and thus no special attention paid.

The toxin perhaps is formed at a fixed time and then gets lost or neutralized quickly. Or it is present in small quantities and may be getting excreted in the renal tubules – in the process gets concentrated and specifically *acts on renal tubules – damaging two functions of reabsorption and excretion*.

If it is purely Anti-ADH, this will not explain loss of excretory function. No electrolytes involved – very specific localization – or the toxin may have cumulative action.

Probably organic in nature – may be from food. Mercury or other salts" But no effect of BAL in treatment.

Dr. Thirumalachar is in Mexico, but his laboratory is doing the work. I have given them fresh samples to. Three deaths are now confirmed. They occurred in April at Wadebolai, 8 miles from Wagholi – our newly affected village on Nagar road. I have some quantity of Bajri and Jwar. Do you want me to collect any more or wish to suggest any thing specially useful investigation?

Do you have list of toxins which act on specifically the renal tubules? If so, we can test for them. Lastly, the feeding results. Due to long reaction in incubation, effects may manifest after three weeks and long observation will be necessary; and shorter observation may be a pit fall. This is important. The only new plant is the American weed – or the Congress grass – weed with serrated leaves and small white flowers on long stocks. We fed some animals, but so far nothing positive. If our forecast is right, may have more cases in November, December and January 1967. Do send me the reprints of Dr. Campbell's work. I can't get it. Expecting reply,

Yours Sincerely,

Sd. Bhau

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## 2. Polyuria and Polydipsia Syndrome, Epidemic of 'Diabetes Insipidus'

The present investigation was started when Dr. C.R. Sule, Hon. Physician, Sassoon General Hospitals, referred cases of polyuria and severe thirst for epidemiological investigations on 27<sup>th</sup> January, 1966. The first case that was admitted in the Sassoon General Hospitals, Poona, for polyuria and excessive thirst was clinically diagnosed as Diabetes Insipidus. He came from a village about 15 miles from Poona. Perne (Haveli) is about four miles from Koregeon on Poona-Nagar road. It was reported that the other members of the patient's family were also suffering from similar illness.

From the history and early epidemiological work it was immediately clear that we were dealing with a curious epidemic of Diabetes Insipidus. During 1952-53, a similar curious epidemic of Diabetes Insipidus arose in the Nagar and Poona Districts of Maharashtra, when about 1,086 individuals were reported as affected. This was called as 'Bota' epidemic because a mobile hospital was established at Bota village near Sangamner in Nagar District.

We were facing a new disease of unknown etiology and probably that was a beginning of an



epidemic of a curious disease. The investigations carried out at the time of the previous epidemic were inconclusive and the results of some of the laboratory tests were doubtful. There were no reports of epidemics of this type reported in the literature available to us. Fortunately, however, we had a benefit of having teachers and friends with first hand information on the previous epidemic in 1952-53. The cooperation of all the concerned and the institutions and the authorities was spontaneously available. With such rich resources, therefore, there was hope and encouragement.

**Clinical Features:** The onset is gradual. The characteristic symptoms are severe thirst and polyuria. General weakness and loss of appetite are present in almost all cases. However, the first case had voracious appetite. It is curious that many of the patients are up and even work in the field during the active disease. Some patients initially get fever with rigor or simply feeling of feverishness, vomiting, etc. The uncommon symptoms were blurring of vision, palpitation, choking sensation, dyspnea on exertion, pain & cramps in the limbs, photophobia, giddiness, etc. The course of the disease is typically benign and most of the cases recover completely within 4 to 8 weeks. There is no relapse. All ages are affected, youngest case is if an infant (breast fed) and oldest over 60 years.

**Family History:** Occurrence of several cases in the same family was another characteristic feature. Seventy-one out of 95 members (18 families) were affected (74%). The different members of the family came down more or less at the same time. The shape of the epidemic curve is suggestive of a single source type of outbreak.

**Physical Findings:** None of these cases showed any significant or consistent abnormality on physical examination. Two cases had peripheral

constriction of the field of vision. Vision and fundoscopic findings were, however, normal. Average urine out-put range was 3,000 to 6,000 ml per day, with a matching fluid intake.

**Mortality:** Three deaths reported so far. All were in a family of eight and only these three were affected. The reports came very late and post-mortem examination was out of question.

**Investigations:** So far, we have failed to get consistent abnormality on routine laboratory investigations. The main exception is the specific gravity of urine, which is 1004 or below. Urine – chemically and microscopic normal. Culture for bacteria negative. Urea clearance test normal. Water deprivation and loading tests are without significant effect on the specific gravity of urine, so also cigarrate smoking and injection Pituitrin. X-ray skull N.A.D.; EKG N.A.D.; Blood sugar, Blood sugar curve N.A.D. Blood and urinary electrolytes, Na, K, Cl, CA, P, within normal. CSF N.A.D.. Blood & tissue cultures negative for cytopathogenic changes. No evidence of known virus infection.

**Treatment:** Bed rest and hospital diet seem to do good. Vitamins, antibiotics, sulphas, Vit. B<sub>12</sub> and some ayurvedic medicines, have not given better results. Change in the diet seems to be favourable for rapid recovery.

**Etiological Factor:** According to the epidemiological observations (causative agent) seems to be a toxin, probably organic, slowing acting or having cumulative effect or getting concentrated in the renal tubules while excretion. The source of the toxin or the poison is likely to be such that it is restricted to within the family's immediate sphere and not involving even the neighbours next door. But in some unknown manner it gets disseminated or transmitted or produced at scattered but a well defined geographical area.

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Preliminary presentation of the investigations to the Members of Indian Public Health Association, at its monthly meeting, Department of Preventive and Social Medicine, B.J. Medical College, Pune.  
(Two papers were published. See volume I, Part F – Epidemiology: 7 and 8 for final discovery.)

## **Part G**

# **Health Manpower Development: Health Manpower**





# 1. Public Health System in India with special reference to Schools of Public Health

**Preamble:** I am happy person today because it seems that one of my old dreams is opening up with the National Consultation on “Institutes of Public Health in India: Moving from Concept to Reality”. I hope that this will be sustained and materialized. These two documents have been prepared on behalf of the Interdisciplinary School of Health Sciences, University of Pune, for the benefit of the participants and other concerned. The objective is facilitative to provide background of the difficult task ahead. It is necessary to be clear on the rough road and obstacles that lie ahead on the march.

**Historical:** The School of Tropical Medicine was established in Calcutta in 1922. The objective was to provide for education and research in the clinical and epidemiological aspects of tropical diseases. The second very significant contribution was the establishment of the All India Institute of Hygiene and Public Health, also in Calcutta in 1932. The purpose was dual, (a) *investigating methods of applying knowledge* for protection to the community and (b) to train the health officers in the local settings rather than train them in England. By the eve of Independence, the Health Survey and Development Committee, popularly known as the Bhore Committee, had submitted its report. This classic report provided an almost revolutionary alternative and furnished a blueprint for a new approach to the health services in India. The national Government readily accepted the report as it was based on guidelines which were similar to those put forth by the National Planning Committee of the Indian National Congress in the thirties.

Many important recommendations were made by the Bhore Committee for the education and training of public health specialists. It included strengthening of teaching of preventive medicine and public health at the medical colleges. It gave details for training in hygiene, preventive medicine, public health, etc. It stated that the teachers of hygiene should be members of the Public Health Department who are actively engaged in public health work or who were till recently so engaged. It continued to state that the officials in Public Health Department who are seconded to a teaching post should be so for a maximum period of five years at a time. The degree to which the Bhore Committee desired strengthening of teaching in public health was very ambitious. It envisaged that the future basic medical practitioner's training in

public health would be on par with that of the then current curriculum for the Diploma in Public Health at the All India Institute of Hygiene and Public Health at Calcutta. The Committee recommended that the course of training Public Health Specialists would extend for five to six years.

**Current Status:** Actions were just opposite. The subject of hygiene and public health was dropped from the undergraduate medical curriculum. Departments of Preventive and Social Medicine have been the victims of neglect, assignment of lowest priority, low prestige, poor quality of staff, inadequate facilities such as transport, field practice areas, etc. The Departments and PSM staff stand fully insulated from the practice of public health and even of preventive medicine. Teaching of PSM and public health at the undergraduate level is very poor. Instead of obviating the need for a DPH course, the DPH course needs to cover topics that should have been effectively taught during the MBBS course.

Over 60 of the Departments of Preventive and Social Medicine at the medical colleges in India have been recognized by the Medical Council of India for conducting a post-graduate course leading to M.D. degree in Preventive and Social Medicine. These Departments have totally failed in their mandate, i.e., preventive medicine becomes an integral part of the practice of clinical medicine. On their own, pediatricians' practice immunization and obstetricians' anti-natal care.

A major blunder was the integration of medical and public health departments. The cadres were integrated. This resulted in a gradual, but substantial erosion of the discipline of public health. Public health is a much wider discipline. It can never be equated with the preventive and social medicine, community medicine, etc. Medical care is the part of public health. The converse is just illusion. Over three decades almost all the Heads of State Health Services and even the Director General of Health Services, Government of India, are neither qualified in public health nor have expertise in modern management techniques, science and art of planning, and delivery of health care in community settings. In brief, the public health system in India has become moribund. At best it can deliver only one service at a time; that too unsatisfactorily and at the cost of other services.



In effect, our so-called Health Services are really "Ill-health Services". They provide poor quality medical services which even the poor villagers dislike. The preventive and promotive health services are given low priority and are totally eclipsed under the family planning now called Reproductive and child health. Over 240 medical colleges are opened in India during the last 55 years. On the other hand, the only school of public health – the All India Institute of Hygiene and Public Health, Kolkata – has been fully neglected. Not that we lack resources. Even the BIMARU States have established five-star Post-Graduate Institutes of Medical Sciences and want to have more. The worse, the former Government of India has declared its populist policy to open six new All India Institutes of Medical Sciences. The paradox is (a) Study Group of ICSSR & ICMR in its famous report has recommended opening a chain of six Schools of Public Health in India, and (b) Approach Paper for 5<sup>th</sup> Five-Year-Plan reiterates the same.

**Public Health Training Institutions:** Four Institutions in India can be legitimately considered as centres for training public health specialists. Below are brief descriptions of these centres.

1. *All India Institute of Hygiene & Public Health:* This was established in Calcutta in 1832 with an objective of training public health officers locally in India in preference to training them in the UK. It is in a key position and has provided the country most of its public health specialists including the public health engineers. It has eleven multi-disciplinary departments and the urban and rural field practice areas at Chetla & Singur, respectively. It conducts several post-graduate degree and diploma courses. It has contributed significantly in health services research and many of the recommendations of the Bhore Committee were based on the early work done at this Institute.

2. *National Institute of Health & Family Welfare:* This Institute was established by amalgamating National Institute of Health Administration and Education (NIHAE) and National Institute of Family Planning (NIFP). NIHAE which was established in 1962 was a unique institution. Through its Staff College Course it contributed significantly to the development of professionally competent Health Administrators. NIFP has taken a more comprehensive perspective to the practice of community health. It has several components of a school of public health. Apart from several orientation training programmes, it conducts a post-graduate course leading to M.D. in

Health and Hospital Administration. It can be upgraded in a School of Public Health. It has potential for health systems research.

3. *National Institute of Communicable Diseases:* It was established by expanding the scope of the World famous Malaria Institute of India which was well known for its research and contribution to epidemiology and control of malaria. NICD is engaged in (a) research and training in communicable diseases, and (b) surveillance.

4. *School of Tropical Medicine:* This was established in Calcutta in 1922. It has contributed significantly in clinical & epidemiological aspects of tropical diseases. It conducts post-graduate diploma course in Tropical Medicine and Hygiene.

There are several other Institutions<sup>1</sup> and Centres in India which are devoted to one or the other aspect of research or training in public health components.

**Inevitable Needs:** The very challenging task today is to strengthen the key leadership and managerial positions within the (Public) Health Services and within the various institutions for education, training and research in health. This is a fundamental prerequisite for the implementation of any strategy for providing Primary Health Care to the have-nots and the poor. For All. The leadership and public health specialists will have several critical roles to play. These include:

1. Organizational, in harmonizing activities at community level with those of the health services in all its components, viz. (a) environmental and occupational health, (b) nutrition security, sanitation and hygiene, (c) empowerment of the people and Panchayati Raj Institutions, (d) social justice & equity, (e) education, employment & income generation for the poor so that they live dignified life without any subsidy, (f) medical care for minor ailments and common diseases, (g) referral for hospital care, and superspecialist diagnostic and therapeutic support, (h) education and training of appropriate health manpower of various categories and at different levels, and (i) developmental planning and research.

2. Epidemiological services and health systems research for community diagnosis, developing and testing innovations and alternative interventions for efficacy and wider application, monitoring and evaluation of ongoing programmes, etc.

3. Managerial, to administer the huge & complex health organization, including meaningful and



effective coordination with all developmental sectors.

4. Technological, in developing appropriate, relevant and cost-effective interventions to solve the varied national, regional and local problems.

5. Social, in ensuring community involvement and participation, and promoting self-reliance and initiative on the part of the people. Placing people's health in their hands through decentralization and empowerment of Panchayati Raj System.

**Schools of Public Health:** Establishing new Schools of Public Health with whatever title one desires to give them, and to maintain high standards and excellence in education and research, will be a right step in this direction. Even with high standard of primary public health services in the USA, the number of Schools of Public Health has increased from 10 to over 24 during the last 45 years. Many are of high repute in terms of the competence and proficiency of their alumni. The Study Group of the ICSSR/ICMR in its report entitled, "Health For All – An Alternative Strategy (1981) recommends establishment of a chain of schools of public health in India. This was endorsed in the approach paper for the 7<sup>th</sup> Plan. Report of the Working Group of the Planning Commission for the 7<sup>th</sup> Plan preparation, on Medical Education, Training & Manpower Planning (1984) provides the estimates for the number of public health administrators / managers from 9,600 to 10,750 by 2000 A.D. It recommends establishment of new Institutions for training and careful assessment of training needs, and the qualitative requirements. Yet, the recommendation has remained in frozen state and even the 10<sup>th</sup> Plan is silent on this vital issue.

**A Word of caution:** Establishing Schools of Public Health or Public Health Institutes is only one of the necessary inputs; by itself this will not improve the poor health status in India. Concurrently, it is obligatory to take necessary steps to rejuvenate our moribund public health system.<sup>2</sup> There is need to revolutionize the public health system. What is *Public Health System and what are its boundaries?* System is an arrangement and set of inter-relationships among multiple components functioning as a whole. Public health system is a social system consisting of mechanisms and organized efforts of a society or nation to protect, promote and restore the people's health. Its three major components are: (a) Organizations such as Ministry, Department, Executive Directorate, Educational and Research institutions, Service Delivery institutions such as hospitals and health centres, etc. Different institutions have a mixed distribution and belong to either the governmental, public, corporate or private sector. (b) Management of all constituent organizations to make them function effectively and efficiently so as to achieve the aims and objectives of the system. Health management consists of systematic planning, programming, implementing, monitoring and evaluating, and redesigning and upgrading in order to meet the ever changing and dynamic health status and challenges and (c) The people for whose health and welfare the system exists and expected to work. Because of its unique characteristics and holistic nature, public health system also has inevitable interrelationship with other social, economic and political systems. All these items should be attended to and rectified for desired effect.

## References:

1. Deodhar, N.S., History of Education and Training of Public Health Specialists in India, Indian Journal of Community Medicine, 14: 66-69, April-June 1989.
2. Deodhar, N.S., Twenty-first Century Public Health in the South-East Asia Region, in particular India, ICHI, New Delhi, 2002, (modification of the concept paper commissioned by WHO, SEA Region, New Delhi, as a follow-up activity to WHO Regional Conference on Public Health in South-East Asia in the 21<sup>st</sup> Century, Calcutta, November 1999.)

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Background paper circulated at the National Consultation on "Institutes of Public Health in India: Moving from Concept to Reality", New Delhi, September 2002.



2.

Comments on the Agenda of the Working Groups

{National Consultation on “Institutes of Public Health in India:  
Moving from Concept to Reality”, New Delhi}

Group discussion for 3½ hours is certainly long, but the tasks are too demanding and critical to be justified in this one session. This is particularly true because we have almost nothing on the ground. With involvement of the foreigners and our habit of coping the West blindly, what may come out is unlikely to be relevant to India’s needs for training

a public health specialist and manger. The basic foundations of public health are lacking in India and this fact cannot be ignored. It will be suicidal. Deliberations in this consultation should be relevant and realistic to the moribund state of public health system and education of public health specialists in India. This note reflects this view. See Table 1.

Table 1: *Fundaments for Health Status in the Western Countries and India*

Determinants of Health	Western Countries	India
1. Safe and adequate water supply	Universal	Poor
2. Sanitary disposal of excreta and all wastes	Universal	Bad
3. Home & Occupation in pollution-free surroundings	Good	Dismal
4. Adequate food supply	Excellent	Not for the poor
5. Capacity to purchase food	Excellent	Poor
6. Food and Personal Hygiene	Good	Bad
7. Education	High level	Low
8. Social and Economic justice	O.K.	Poor
9. Medical and allied services	<i>Present concern</i>	<i>Undue High priority</i>

It is clear that in the West the fundamental needs for public health are provided and what remains in largely medical care. Naturally for the experts from those countries, priority is medical care (and they call this as health care). We have remained blind to this reality and the Governments are giving priority to medical care and neglecting even the basic public health services. The best evidence is that we have over 240 medical colleges and only one (neglected) School of Public Health established by the British. This is despite the recommendations: (a) Study Group of ICSSR and ICMR in its famous report has recommended opening a chain of six Schools of Public Health in India, and (b) Approach Paper for 7<sup>th</sup> Five-Year-Plan reiterates the same.

The greatest danger is that the Departments of Preventive and Social Medicine are often considered as ‘Public health Centres’. This will be suicidal, especially if the teachers from the medical colleges with zero experience and training, are recruited to fill the Faculty positions in the Schools of Public Health proposed to be

established. At this stage there is no need to mention other problems.

Our strengths are that (a) we are not required to import intelligence and (b) we have large number of labour, cheap and potentially good on training and guidance. If we take it seriously and honestly, and job can be definitely done well.

**1. Curriculum and Resources:** ✱ With a very weak training of the undergraduate students, the curriculum will be loaded with matters that should have been covered earlier. There should not be any short-cuts such as orientation courses, workshops, etc. We should learn lesions from what happed to the Community Health Workers’ and Multipurpose Health Workers’ Schemes. What a mess Government of India and supreme centralized directives did very efficiently!

✱ The basic formal course to train public health specialist should be of three years as it is for the postgraduate degree of M.D. in India. In the mean time, to improve the situation and make it conducive to public health, three months Staff



College Course should be organized. This should be essentially on the line the course which was run by the erstwhile National Institute of Health and Education, New Delhi. The Faculty should be hand-picked (by the experts and NOT following usual Government procedures).

✱ Class-room teaching should be limited to 25% and the rest should be practice under expert supervision and guidance. Entire one or more districts should be the field practice area. Topics to be covered may be indicated, but this task should be left to the experts. Further, in view of the wide canvas of the multidisciplinary health sciences, and the very wide regional disparities and variations in the country, there should be no attempt for standardization and uniformity. Scope should be open for evolution. Only control needed is to ensure quality, efficacy, relevance, impact, and working with the system and not remaining in the ivory (academic and theory) towers.

✱ Initially, concentration should be only on training the public health specialists. There should be no dilution because we have hardly any such real experts. Once we get at least a critical mass of the experts, building up of the infrastructure will be smooth and need-based, and ensuring capability to deliver the services to the grass-roots effectively and efficiently. We have ruined ourselves by taking the short cuts.

✱ Mobilizing faculty will be highly demanding task as the good commodity is scarce. Initially, we shall have to seek for external help, but this should be at the highest level as was done by the erstwhile National Institute of Health and Education, New Delhi. Epidemiology is certainly one of such disciplines.

✱ Issue of accreditation should be borne in mind from the start. It is the matter of quality assurance, leaving "will-do" attitude, etc. This will take time and no urgency. About the Medical Council of India (MCI), it must be made very clear that Public Health is no longer and was never a monopoly of medical profession, it is clearly multidisciplinary; in fact trans-disciplinary. In Pune, our school is under the science faculty. This is important. MCI may be involved, but cannot be the regulatory body. This has to be UGC.

✱ Partnership will be desirable. But this should not lead to any kind of dependence, loss of freedom, distortion of priorities, & other ills of international

and external agencies. All terms should be ours, of course taking others into confidence.

**2. Research and Resources:** ✱ The problem of public health practice in India is not the lack of scientific and social knowledge and technology. The issues are: (a) failure of the use of available technology for the welfare of the people in the given settings and (b) poor & ineffective management. It is often said that we plan well but can't implement. However, nothing is done about it. What we badly need is *Health Services/System Research*. This has to be an integral part of health services management/administration. This has to be the highest priority. At present we lack any meaningful activity in this area.

✱ Secondly, at present our health planning is *ad hoc* and is without any grass-roots level data and information. Aggregate data at the National and State levels leads to gross misleading in planning procedure. Bottom-up planning is essentially on paper. Naturally, the programmes neither satisfy the local needs nor solve the problems in rural area. It is imperative that future research should be directed to generate adequate and decentralized data-base required for meaningful planning.

✱ Thirdly, various programmes and projects focus on the method and procedures, and forget the objectives. Failures are recognized when the programmes come to an end and the issues are raised by the press and/or judiciary. Thus, there is need for periodic review and assessment of all the ongoing programmes and services to ensure desired impact. Even after decades of programme for prevention of nutritional anaemia in pregnant women, over 65 % of the women at the time of delivery are anaemic. This is just one of the several examples. This is certainly managerial research which is badly neglected. Almost all evaluations are done because of requirement of the external funding agencies. Even here, the evaluation reports gather dust without appropriate remedial measures.

✱ Epidemiological investigations and research should be the priority areas for the control of both communicable and non-communicable diseases. Once the basic policy and priorities are fixed, other items on the agenda are administrative issues for the manager.

**3. Governance Structure:** ✱ My experience at AIHH&PH, Kolkata, was that despite my repeated proposals and pleas, the Union Ministry of Health, New Delhi, failed to depute even a single officer to



undergo DPH course; this was during entire period of five years of my Directorship. If there is no utilization and deployment of qualified public health experts by the Governments for management of health services, it will be futile to establish the proposed institutions. The Union and State Governments major responsibility is to commit to (a) promote public health as an essential requirement for health development, (b) recognize the leadership role of public health in formulating and implementing evidence-based healthy public policies, (c) creating supportive environment, (d) enhancing social responsibility by involving communities, (e) increasing the allocations of human and financial resources, (f) creating career structures at national, state and district levels by establishing a new cadre of Indian Health Service (IHS) on par with that of IAS, (g) policies to mandate competent background and relevant expertise for persons responsible for health. Thus, Directors and top level officers should qualify in public health and have good record of performance and leadership.

✱ True autonomy is possible only when the Government means business. At present what we have are pseudo-autonomous bodies. The basic need is genuine willingness of the authorities. Secondly, the process of institutional building should ensure that the organization develops competence required for autonomous functioning. This has to be evolved over time. We should learn lessons from the functioning of the so-called 'deemed Universities'. There cannot be any politics as we have seen in IIMs.

✱ Constitute teams of consultants consisting of renowned public health experts, private and public, epidemiologists and executive managers to advise the Institutes and the Governments.

✱ Government should realize that true voluntary bodies are not subordinate to the Government. Supplementary and complementary roles of the two should be recognized. The need is to promote and develop meaningful partnership between Government and Voluntary Organizations to work in harmony, as a team with mutual respect. Incidentally, NGO is a bad term and many of them are opportunist (incompetent) and serving as agents of the Government (for money) and have no developmental agenda of their own.

✱ Institutional linkages are possible only if necessary climate is created. When there is lack of mutual respect and recognition, when there is

suspicion about intentions, when the objectives are not clear, functional linkages are not possible. Secondly, this cannot rest on person-based, but need to be institutionalized.

✱ Unfortunately, MLAs and other politicians interest in education are largely economic. As against medical education, there is no money in public health education. It is best to keep them away. It may be better to involve corporate sector in this endeavour.

✱ Governing Body of the School of Public Health / Public Health Institution should function and be responsible on similar basis as in the case of Board of Directors of a Commercial Company. It should have about 5 % of ex-officio and other members representing the Government, and a mechanism to safe-guard public/community interests. It is too premature to enter into further details at this stage, and there are no ready-made systems and mechanisms.

✱ As OSD(I) in the Ministry of Health and Family Welfare, New Delhi, I prepared the Project Report for establishing North-Eastern Institute of Health and Medical Sciences, Shillong, Ministry of Health and Family Welfare, GOI, New Delhi, pp 183, January 1984. I am not in favour of 'regional institutes'; these should be all national institutes. However, the Institute is now called 'Indira Gandhi North-Eastern Regional Institute of Health and Medical Sciences'. Governing Board structure is different from what was recommended. Despite of all the non-compliance, this report has addressed most of the issues of governance raised for this Group's discussion.

✱ The most important stakeholders in these institutions will be the people, especially the have-not and the underprivileged people. This should not be lost sight of. The best persons to represent them will be (a) representatives from the Zilla Parishads and (b) social reformists and activists from the voluntary sector. Appropriate interests of all can be best dealt by any competent Governing Board.

✱ By the very nature of public health, these Institutes can never be expected to be self-sufficient. Medical Five-star Institutes like AIIMS, New Delhi, can become self-sufficient, if the 'free' treatment is stopped. None of such organizations managed by the Corporate Bodies run in loss. Their shares are gaining value. Full support by the Government for capital, revenue and development



up-dating will be obligatory, least they will be dead-wood as in the case of AIIH&PH, Kolkata. With wrong planning and presumptions, Government of Maharashtra, has fully and successfully destroyed the World-reputed Haffkine Institute, Mumbai. Lessons are to be learnt. Once the new Institutes develop expertise and demonstrate proficiency, they can attract research funds and consultation contracts. Gesticulated capital cost for establishing modern School of Public Health of a quality comparable to that in the Developed World would be about Rs. Ten crores, and annual expenditure of about three crores and keeping pace with developments and inflation.

✱ The major key challenges include: (a) to get Directors with fore- and insight, leadership qualities, etc., e.g., someone like Dr. B.B. Dikshit who established AIIMS, New Delhi, (b) to do away with the concept of 'model' and go for innovations and departure from the beaten-tracks, (c) interference, inadequate financial and other supports, etc., from the Government, (d) securing and holding competent and experienced Faculty under eight to ten disciplines of health sciences, (e) failure of the Governments, the key and major users of the goods – public health experts, epidemiologists – to employ and appropriately deploy them; and ensuring career development so as to attract and indoctrinate a stream of talented young candidates to accept public health as a career.

✱ Real bottleneck will not be in NGO sector, but with the Governments. In old days before integration of medical and health services, all the Directors of Public Health and senior officer up to at district level were formally trained and qualified in Public Health. This was also true of the senior officers of the Railways, Port Trusts, etc. Today, for a few exceptions, all these positions are occupied by persons who are not fit for public health jobs. Things will settle once the Government makes its mind and acts appropriately. I have reasonable hope now since Dr. K. Srinath Reddy is given a major role to play in this Consultation. Only such persons, and we have only a few of them, can deliver goods and strengthen public health system and education, given full freedom.

**4. Catalyzing Demand:** ✱ All the public health management and training positions in the Governments and PRIs at the district and higher levels are to be manned by public health experts. The positions and other details are provided in the Report of the working Group on Medical Education, Training and Manpower Planning, VII Plan, Planning Commission, GOI, New Delhi, February 1984. Only fully trained and qualified persons should be recruited starting from the district level and other positions. For this the officers with proper aptitude from the junior scales should be selected and deputed for M.D. Public Health (M.D. courses in PSM and Community Medicine should be abolished). While the new Health Cadre is being established from the bottom, the senior officers currently in position should undergo Staff College Course of duration of not less than three months. This is rather slow but the sure and sustained way of building-up; and will not be counterproductive.

✱ Trans- and multidisciplinary nature of public health discipline should not be lost sight of and the Health Cadre should be open to all and not restricted to the medical graduates.

✱ A major challenge will be unwillingness of most of the clinicians to take up training and senior positions in public health specialities. Many of them may not be otherwise suitable. This issue can be easily sorted out by structural change by separating the Medical and Public Health Services as it was in the past. Medical services should include all curative medical care at the district and higher levels; in modern terminology the secondary and tertiary health care. Public Health will include all aspects of primary health care and intersectoral health development.

✱ Operational details are obviously beyond the scope of this consultation. Follow-up actions are essential on a Mission-mode. For this highly empowered Expert Group consisting of five to eight renowned public health experts, epidemiologists and executive managers of high caliber should be nominated. Quality and relevance of education should be assured. Good faculty has to be invited.

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National Consultation on "Institutes of Public Health in India: Moving from Concept to Reality", New Delhi, September 2002. Invited by Dr. Bhushan Patwardhan, Director, School of Health Sciences, Pune.



### 3. DRAFT STRUCTURE AND CURRICULUM FOR MPH COURSE AT INTERDISCIPLINARY SCHOOL OF HEALTH SCIENCES, UNIVERSITY OF PUNE, PUNE

**Preamble:** The University Grants Commission, New Delhi, has approved instituting a new innovative course leading to MPH (Masters in Public Health) at the Interdisciplinary School of Health Sciences, University of Pune. It is well known that the basic weaknesses and failures of Health Services Administration in India lie in: (a) general apathy and lack of interest in public health and preventive medicine in general population, administrators and politicians, (b) lack of insights in public health and primary health care; failure to recognize poverty as a root cause of most of disease, (c) failure in timely recognition and thorough understanding of the public health problems, (d) want of designing feasible solutions and plans, testing them for efficacy and wider application under diverse situations and constraints, and (e) mediocre management of health services, lack of equity, etc.

In view of this, primary strategy of this training course will be to provide for *diagnosis* (community diagnosis and situation analysis) and treatment (designing interventions) for the solution of the problems and managing them efficiently to have desired impact). Emphasis will be on developing competence in epidemiology, health systems research, working with the people, and management sciences. Stress will be on attitude and confidence building learning, by self-learning by doing, hands-on training, assignments and residency. Societal and behavioural aspects of health will be a priority.

The aim of the proposed course of training is to ensure that after successfully undergoing the course, the alumni will be competent to manage all aspects of health services to the people and ensure that all the functions of public health services are provided at all times, viz. (1) Control and prevention of common communicable and non-communicable diseases. 'Freedom from epidemics', environmental health and healthy lifestyle should be the integral components of this activity. (2) Reduction of mortality, morbidity and disability. This activity involves development of multi-disciplinary and multi-level health manpower and organizations. (3) Information, education and communication (IEC) effort to empower the people to become self-reliant in matters of health. The

main objective is to encourage and promote lifestyles which are conducive to better health. (4) Equitable improvement of health and well-being, (5) Research directed to identify and solve health and associated problems and ensuring progress. This involves health systems research for optimum use of available knowledge and technology for welfare and better quality of life of the people. (6) Providing advocacy and securing community participation, and collaboration and cooperation of Governmental and other developmental sectors. (7) Securing and providing adequate resources – finance, manpower, materials and strong public support. (8) Dictum in public health is 'what is important is not what has been achieved, but what remains to be done'. (9) Key to success is ability and willingness to go out of beaten path, do away with *status-quo*.

**Eligibility:** Graduate degree in life sciences, dentistry, nursing, pharmacology, nutrition and dietetics, anthropology, sociology, psychology, microbiology, veterinary science, medicine and surgery, Ayurveda, homeopathy, etc., or as considered in individual case.

#### Objectives:

1. To train public health experts and epidemiologists having knowledge, learning ability, technology, leadership qualities, and management skills. This should enable them (a) to take task of comprehensive health development of the community and ensure better quality of life and (b) to be good advocates for launching public health movement.
2. To integrate social and cultural factors and determinants into the practice of public health; to promote equity and social justice in health delivery; and to develop innovative and alternative approaches to meet the varying local needs of common people/villagers.
3. To encourage health services/systems research as an integral part of health administration/management. This should lead to improved cost-effectiveness and promote application of the scientific and technology advances for the benefit of the people.
4. To promote development of diagnostics, biomedical, laboratory and other support services



required for health promotion, and disease and disability prevention.

5. To evolve public health speciality as a discipline, as against medical care, in Indian Universities. This should lead to training of adequate number of public health specialists and researchers required for health promotion and management of health services.

### Courses and Credits:

MPH programme is two-year full-time course consisting of four semesters. Student needs to complete 100 credits in order to obtain the Masters Degree, subject to approval of the dissertation on a public health issue. Out of these

75 credits are compulsory from the core courses offered by the School. The students have open option of selecting the rest of 25 credits while the remaining 25 credits can be taken from other post-graduate courses of the University of Pune, in any other subjects that the student may consider necessary for his/her career development, etc. This component of 25 per cent of the credits can be effectively used to expose the MPH students in selected public health super-specialities such as epidemiology, RCH (MCH), Health Management, Public Nutrition, Communicable Disease Control, Immunization, Non-Communicable Disease Control, Occupational/Industrial Health, Counselling (IEC/CBC), Health Economics, Biometry, Public Health Laboratory Sciences, etc.

### Curriculum:

**Semester I** – (All are core courses, 26 credits, and are compulsory)

MPH 1.01	Public Health Concepts: Health, Disease, Medicine, Social Medicine, Community, and Issues	2 credits	30 hr
MPH 1.02	Human Biology, Defense Mechanisms, Behaviour, lifestyle	3 credits	45 hr
MPH 1.03	Public Health System and its Boundaries, Health Organizations	1 credit	15 hr
MPH 1.04	Panchayati Raj Institutions, Nagarpalikas & people, field study	2 credits	30 hr
MPH 1.05	Demography and Measurement of Health	2 credits	30 hr
MPH 1.06	Principles of Biostatistics, quality and understanding data	2 credits	30 hr
MPH 1.07	Statistical Analysis: pit-falls, presentation and interpretation of data, utilization in decision making, Computer laboratory	3 credits	45 hr
MPH 1.08	Fundaments and uses of Epidemiology	3 credits	45 hr
MPH 1.09	Epidemiological methods, study designs, etc.	3 credits	45 hr
MPH 1.10	Delivery and utilization of Health Services, urban and rural, Access, Coverage, Quality, Perception, field work & studies	5 credits	75 hr

(Each student is required to prepare, present and submit a review paper during the term)

**Semester II** – (MPH 2.01 to 2.09 are core courses, 21 credits, and are compulsory)

MPH 2.01	Principles of Human Nutrition	1 credit	15 hr
MPH 2.02	Nutritional Assessment, individual and community	3 credits	45 hr
MPH 2.03	Nutrition Interventions in Health and Disease	1 credit	15 hr
MPH 2.04	Introduction to pathogens and other health hazards	1 credit	15 hr
MPH 2.05	Environmental Health	2 credits	30 hr
MPH 2.06	Infectious Diseases and their Epidemiology	3 credits	45 hr
MPH 2.07	Basic Immunology and Immunization for prevention	2 credits	30 hr
MPH 2.08	Scientific Research Methods and Tools and field work	4 credits	60 hr
MPH 2.09	Health System/Services, Operations Research, field work	4 credits	60 hr
MPH 2.10	Community Nutrition (optional)	2 credits	30 hr
MPH 2.11	Occupational Health (optional)	2 credit	30 hr

(Each student is required to prepare, present and submit a review paper during the term)

**Semester III** – (MPH 3.01 to 3.09 are core courses, 18 credits, and are compulsory)

MPH 3.01	Non-Communicable Diseases and their Epidemiology	3 credits	45 hr
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MPH 3.02	Mental Health	1 credit	15 hr
MPH 3.03	Infectious Diseases, Control and Prevention, Programmes	5 credits	75 hr
MPH 3.04	Non-Infectious Diseases, Control and Prevention, Programmes	3 credits	45 hr
MPH 3.05	Primary Health Care Approach and Basic Health Services	2 credits,	30 hr
MPH 3.06	Reproductive Health	1 credit	15 hr
MPH 3.07	Child Development and Health, Genetics	1 credit	15 hr
MPH 3.08	Ageing gracefully	1 credit	15 hr
MPH 3.09	Community Participation and role of voluntary organizations	1 credit	15 hr
MPH 3.10	Gender Issues (optional)	1 credit	15 hr
MPH 3.11	Adolescence Health (optional)	2 credit	30 hr

**Semester IV** – (MPH 4.01 to 4.04 are core courses, 10 credits, and are compulsory)

MPH 4.01	Principles and Techniques of Management, Planning, Strategy, Programming, Implementation, Supportive Supervision, Reviews, Mid-term corrections, Evaluation, Lessons for subsequent Plans and Programmes	1 credit	15 hr
MPH 4.02	Management of Health Services at various levels, Evaluation, Class and Field assignments	5 credits,	75 hr
MPH 4.03	Disaster/Epidemic Management	2 credits,	30 hr
MPH 4.04	Health Status, Behaviour and Lifestyles	1 credit	15 hr
MPH 4.05	International Health, Issues in Globalization	1 credit	15 hr
MPH 4.06	Information, Education, Communication for Promoting healthy lifestyles, behavioural change (optional)	2 credits	30 hr
MPH 4.07	Health Counselling (optional)	2 credits	15 hr
MPH 4.08	Health Economics (optional)	2 credits,	30 hr
MPH 4.09	Advanced Research and Field Studies (optional)	4 credits	60 hr
MPH 4.10	Assignments in Health Services Organization (optional)	5 credits	75 hr
MPH 4.11	Development of Research Proposal & writing Report (optional)	3 credits	45 hr

**Dissertation:** Submission of dissertation is one of the pre-requisites of final examination.

It is necessary to select a suitable topic for working on and writing a dissertation. This selection has to be done during the first semester and got approved from the School Authorities. Dissertation draft should be presented to the fellow students and faculty, during the first month of the IV semester. The final version of the dissertation, duly attested by the teacher assigned, should be submitted for assessment at least two months before the first day of starting the final University Examination for MPH. No formal credits are provided for the dissertation. It is a tool for application and self-learning.

**Learning objectives:**

On completion of training, the successful candidate should be able to shoulder responsibility for the following 20 tasks. Of these, he/she should have mastery in at least 10 to 15 topics.

1. To understand and develop insight about the constituents of health system, their roles, control,

inter-relationships, interactions, weaknesses, strengths, etc., within health system.

2. To be competent in community diagnosis and situation analysis.

3. To interpret, conclude and have clarity of what is wrong (problem), developing insight into the reasons thereof, and how to go about it.

4. To imagine (ideas), design, and develop interventions for the solution of the problems.

5. To test efficacy and feasibility of the interventions, and get confirmed their wider application in various heterogeneous and diverse socio-economic, geographical and other situations of the areas and the people.

6. To translate successfully the tested interventions into area- and community-specific public health programmes. This involves mobilization and provision of all kinds of resources, and preparation of the organization and the people.

7. To be able and proficient in managing public health and related programmes efficiently and to have desired impact. Emphasis will be on developing competence in practice of epidemiology and working with the people

8. To develop expertise in basic theory and principles of management sciences and processes.



To apply modern management techniques in delivering health services.

9. To develop willingness to change, mindset for decentralization and placing people's health in their hands, etc.

10. To play advocacy role for ensuring inter-sector coordination and collaboration in the process of sustained and comprehensive health development.

11. To have insights into the control and prevention communicable and non-communicable diseases. To be prepared for taking-up innovations and alternate approaches.

12. To have clarity about the environmental health issues and lifestyle factors as the basic determinants and integral components of the public health programme activities.

13. To gather reliable and timely good data on mortality, morbidity, disability and other health indicators. To get these data verified for quality and goodness, analyzed, presented, interpreted, especially for decision making and designing programmes for improvement.

14. To develop multi-disciplinary team of experts and multi-level health manpower and organizational supports such as various kinds of institutions and organizations.

15. To bring about behaviour change of the people through IEC, IBC and other tools in order to encourage and promote lifestyles which are conducive to better health and improved quality of life.

16. To develop insights to empower people to become self-reliant in matters of health.

17. To conduct/promote research directed to identify and solve health and associated problems, and make health systems research as an integral part of health management and administration with an objective of ensuring optimum use of available knowledge and technology for better quality of life of the people.

18. To provide advocacy and securing community participation, and collaboration and cooperation of all Government developmental sectors and voluntary organizations. In this endeavour, social, political and economic barriers to health need to be addressed actively.

19. To be able to secure, mobilize and provide adequate resources – finance, manpower, materials and strong public support.

20. To realize the need for consultation and expert advice, and have multidisciplinary panel of experts in the process of policy formulation, planning, strategies, programming, monitoring, evaluation, research, etc., on regular basis.

### Methodology of Training:

Public health is essentially multi- and trans-disciplinary. It is both an art and applied science. It can only be learnt by its practice in community settings and that too in diverse topographical, socio-cultural and political situations. Class-room can help only to prepare for field work, but can never be a substitute for situation-based learning. With this characteristic, the training course leading to MPH will be a pioneering tripartite collaborative endeavour, first of its kind, of the Interdisciplinary School of Health Sciences, Directorate of Health Services (including Pune and Pipri-Cinchwad Municipal Corporations), and other collaborative organizations/institutions such as Yeshwanttrao Chavan Institute of Developmental Administration, BAIF Research Foundation, etc.

This collaboration has another important aspect, i.e., policy of the University of Pune to bring together educating manpower and organizations utilizing trained personnel. Such collaboration is already in practice with some of the Industries in Pune. The current traditional DPH course is conducted in class-room and provides theoretical knowledge. This unique collaboration will effectively rectify these limitations. Post-graduate training should prepare the candidates for the future tasks. It is in this regard, apart from developing leadership and management skills, participation of Yeshwanttrao Chavan Institute of Developmental Administration, Pune, will focus on developmental administration and lessons of working with Zilla Parishads, *Nagarpalikas* and grass-roots as *Panchayats* and *Gramsabhas*.

**Faculty:** With this kind of innovations, apart from the Faculty members of the School of Health Sciences, much larger guest/visiting faculty consisting of professional and other experts in various health sciences, Senior Health Officers of Directorate of Public Health, Govt. of Maharashtra, and selected experts from other organizations and institutions will be involved actively.

### Further Preparatory Needs and Work:

1. Meetings officials of Directorate of Health Services and Government of Maharashtra, and necessary agreements and MoU, etc.
2. Hour-wise (teaching units) list of lecture topics,



practical work, field visit/work, etc., has to be detailed for each of the courses specified in the draft curriculum.

3. Break-down syllabus by day and weeks with a mix of lectures, practical, etc., for each semester so as to ensure that the subjects and topics are arranged systematically to build the base to learn and understand subsequent subjects and topics.

4. Identify and confirm teachers/instructors /supervisors/preceptors for each of the items of break-down syllabus. It is desirable to have pre-determined alternative arrangements.

5. Identify, select and prepare places for field visits, work, assignments, etc., together with the resource person, local contacts and helping teams. Transport

and accommodation will have to be looked into and arranged in advance.

6. Preparation of weekly time-tables for teaching for each semester.

7. Mobilizing necessary teaching aids and materials, books, references, etc.

8. Building and strengthening the core of senior faculty in various sub-specialities in health sciences.

#### **Financial Considerations:**

Resource mobilization, Grants, Advertisement for National Competitive test and selection, Consultation, Fee structure, etc.

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Prepared for Faculty Meeting of School of Health Sciences, University of Pune, 8<sup>th</sup> September 2005.

#### 4. REVIEW AND REVISION OF POSTGRADUATE EDUCATION IN HEALTH AND MANAGEMENT, HEALTH AND RELATED SCIENCES

**Introduction:** In spite of impressive progress during the last three decades, the health and demographic status of India is still our serious and urgent concern. This is reflected in the statement of National Health Policy which strongly indicts many aspects of health care delivery and system as operating over three decades.

Lop-sided development of hospital-based medical services has been one of the major factors responsible for our failure in providing comprehensive primary health care services to the entire population. As a result of undue emphasis on curative approach, the preventive, promotive, public health and rehabilitative aspects of health care services have received a much lower priority in "health" development in India. This was despite their obvious overriding importance.

Leadership crisis has been a major weakness of the health services organization. Strengthening of the key professional leadership positions within the health services, the educational and training institutions, and research centres, is essential to rectify the present situation.

In this endeavour, health professionals have to play a major role in shaping of the health services system of the country. The major tasks are: administration of health services, provision of services to deal with the current and emergent health problems, provision of education and training of all categories of health manpower, and provision of supportive expertise for planning, evaluation and research. Our immediate concern in the present exercise is about two types of health professionals, viz. (a) professionals who are mainly line functionaries and who play major managerial roles, and (b) professionals who are public health specialists at higher levels of health organization. To these one may add the teachers and trainers for training these key professionals; and the experts in planning, evaluation and research.

**Situation Analysis:** Health Administrators – Most of the Central, State and district level medical officers who are responsible for administration and management of health services or health programmes, do not have relevant educational qualification or training in public administration & management sciences. Public Health Specialists – Reports and surveys on health manpower show that we do not

have required number of public health specialists who are academically qualified or formerly trained. As for the quality, it is our serious concern. We do not have health professionals like epidemiologists, social scientists, anthropologists, health economists, biostatisticians, environmentalists, etc., in adequate numbers and proficiency.

**Estimated Requirements:** At the average rate of ten health administrators per State and Union Territory, we need 300 of them. In addition, requirement at the Centre and districts will be about 50 and 1,200, respectively. This totals to about 1,550.

All the officers in charge of the national and State health programmes, and one of the officers at district level should be public health specialist. Further, at least 1/3 of the line health administrators mentioned above should have undergone a degree course in public health. This works out to be  $150+10+600+100 = 860$ .

The above estimates do not include the categories of teachers, planners and researchers. Also not included are the requirements of the other departments like railways, armed forces, industries, municipalities and corporations, private sector, etc. This number will be quite high.

**Educational Facilities:** Only a limited number of institutions like NIHFV, New Delhi, and IIHMR, Jaipur, offer degrees in health management/administration. There are some other institutions such as TISS, Bombay; and IIHM, Pachod, offer short term refresher courses in health management. Professional organizations like ISHA and FRHS also conduct short courses in management. Intake for the courses is very limited in relation to the requirements.

Our facility for training public health specialists is limited to only one institution, All India Institute of Hygiene and Public Health, Calcutta. This is not in good shape. Many medical colleges do run courses leading to M.D. in PSM/SPM/Community Health/Community Health, and D.P.H. However, these departments are poorly staffed and do not have even the basic facilities for training public health specialists. Standards are poor except couple of selected places. Admission to these courses is limited.



**Appropriateness:** Management courses are of two categories, hospital management and health management. Hospital management courses/training is organized with limited or broader objectives and very a great deal in regard to the period. On the whole, most of the courses are satisfactory, except that there is scope for uniform standard & specifications in regard to the minimum requirements of faculty, space, training facilities, etc.

Health management courses show much wider variations in the curricula, methodology, etc. The courses do not necessarily meet the requirements of a professional manager and a public administrator. Co-ordination and restructuring is essential to enhance utility.

The current education and training courses in public health are out-dated and inappropriate to the present day and future requirements. DPH course combined public health and administration topics. It was appropriate in old days when major functions of the health services were limited to the control of epidemics of smallpox, plague and cholera. Health departments were also quite small and rural health services were almost non-existent. But now in drastically changed situation, this course has become absolute. DPH has lost its purpose & utility.

As regards M.D. courses, although nomenclature differs, syllabi are more-or-less comparable for PSM or community medicine, etc. The training is being imparted in the medical colleges with its small departments of preventive and social medicine or community medicine which receive lowest rank with regard to staff, space, equipment, transport and other facilities, budget and prestige. They lack in required interdisciplinary public health research and public health practice. Teaching remains within the narrow confines of the medical sciences when it should be thoroughly interdisciplinary. Public health is equated to PSM or Community Medicine, and is considered to be a minor part of medicine. Use of the term public health has virtually become a taboo. This is a tragically harmful reversal of the truth, for medicine is indeed a minor part of public health. In effect, these postgraduates are unable to function as public health specialists or in other roles like of epidemiologists.

**Prescription:** In 1081, ICMR/ICSSR Joint Study Group in its Report, "Health For All: Alternative Strategy for Primary Health Care", recommended that a chain of post-graduate institutions in public health (Schools of Public Health as in USA) should

be established on a regional basis. This was also mentioned in the approach paper for the VI Five-Year-Plan. But nothing has happened so far.

A joint meeting of the major agencies involved in health manpower development was convened in Delhi at the National Institute of Health and Family Welfare on the 20<sup>th</sup> and 21<sup>st</sup> November 1993. A copy of the minutes is enclosed as ready reference. Major recommendations of this group were as follows:

1. The present courses leading to D.P.H. should be discontinued. A new post-graduate course leading to Diploma in Health Management, DHM, should be started.
2. The current post-graduate degree courses in PSM/SPM/Community Medicine, Health Administration, etc., should be reviewed and replaced with a comprehensive course leading to M./D. in Health Sciences. There may be provision for honours in epidemiology, IEC, MCH, FW, biometry, etc.
3. Working Groups should be constituted to draft curricula, minimum requirements for educational institutions to qualify for conducting education for D.H.M. and M.D. (Health Sciences).
4. A national seminar/workshop should be organized for wider consideration so as to ensure smooth implementation.

In light of these recommendations, two directional activities are called for - (a) To specify requirements to be fulfilled and the facilities to be provided by and educational or training institution, before it is recognized as an approved place for imparting education and/or training in the proposed management and public health courses. (b) Review of the syllabi and curricula currently in vogue, and draft fresh syllabus/curriculum for a Diploma in Health Management (D.H.M.), and for M.D. (Health). (c) Policy and administrative decisions to abolish the existing D.P.H., and M.D. (PSM) and allied topics like Community Medicine, Health Administration, etc., and introduction of DHM and MD (Health) with or without sub-branches. The first two of these activities are deliberated in this exercise. The third has to be taken by the Medical Council of India.

**Management Institutions and Centres:** These are involved in training in health management /administration and have come up during the last decade or so, e.g., (1) National Institute of Health and Family Welfare, New Delhi. (2) Indian Institute of Health Management Research, Jaipur. (3) Indian Institute of Management, Bangalore. (4) Tata



School of Social Sciences, Bombay. There are many places where training is imparted in hospital management. These are not considered in the present exercise.

**Public Health Institutions:** There is only one, i.e., All India Institute of Hygiene and Public Health, Calcutta. Term Public Health Institute clearly *exclude* departments of preventive, social or community medicine which are part of, and subordinate to the medical colleges or even the post-graduate institutions. Such schools should be established within a university setting. Institutions like NIHFW or State Training Centres, working under health ministries or departments tend to run vocational training programmes rather than academic courses and supportive research.

**Requirements of the Institutes/Centres:** The scope of the requirements may be considered under the following heads – (a) Buildings: Administrative, Teaching, Library, Laboratories, Research, Field, Hostel, Staff Quarters, Guest House, etc. (b) Equipment, transport, materials and supplies, etc. (c) Staff: Teaching Faculty – this should cover all the disciplines related to management/public health, both qualitatively and

quantitatively; Administrative and supportive staff; Research and technical personnel; Field; House-keeping; Security; etc. (d) Field Practice facilities & arrangements. (e) Amenities: Water, Sewerage, Disposal of wastes, Electricity, Recreation, Play ground, etc. These and other points should be discussed; and specifically and separately laid down for institutions to be approved for conducting management and health courses.

The key basic sciences in public health are – epidemiology; biostatistics; social sciences including economics and politics, anthropology, sociology, I.E.C., etc.; and natural sciences like human biology, microbiology, virology, Protozoology, immunology, toxicology; Research Methodology, etc.

The key areas in management and administration are – Policy formulation, Planning and Programming, Implementation, Monitoring and evaluation, M.I.S., Research and development, Man and Material management, Financing including budgeting and expenditure control, Staff development, Community involvement and participation, Resource mobilization, etc.

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Background paper for three follow-up workshops held by NIHFW, New Delhi, Viz. (1) National Workshop on Restructuring of Education and Training in Public Health Management, 22-24 November, 1995, (2) National Workshop on Restructuring of Education and Training in Public Health Management for Residents and Postgraduates, 24-26 July, 1996, and (3) National Workshop on Restructuring of Education and Training in Public Health Management for Senior Health Administrators, 29-30 August, 1996. ISHA and NIHFW Joint Meeting on Public Health Education, on 20-21 November, 1993 was chaired by Dr. A.K. Mukherjee, DGHS, GoI. Also, forwarded for the Academic Advisory Council of Public Health Foundation of India, New Delhi, 8<sup>th</sup> April 2007.





## **Part H**

### **Public Health and Health Care**





# 1. LIFESTYLE AND HEALTH PROMOTION

**About Health:** Health has been accepted world-wide as one of the fundamental human rights. However, health cannot be given or distributed; it has to be acquired actively and sustained. To acquire, preserve and promote health individually or collectively, and know the ways of preventing and handling diseases satisfactorily, it is necessary to understand the basic facts about health and disease. Equipped with such knowledge and understanding, we can take care of our health, prevent disease and live happily.

The World Health Organization defines 'health' as a state of complete physical, mental and social well-being and not merely an absence of disease or infirmity. But the meaning of health can be understood better by considering health as a state of equilibrium or harmony between man and his physical, chemical, biological, emotional and social environment, compatible with full functional activity of the person. Another way is to regard health as a state characterized by physical fitness, ability to discharge various social and community duties; ability to deal with physical, biological and social stress; a feeling of well-being and contentment, and freedom from the risk of disease and untimely death. Of late, the spiritual aspects of health are also gaining support which they rightly deserve. Thus, everything in life influences health status, both individual and collective.

Anatomical, physiological and metabolic, emotional and intellectual mechanisms, processes and activities constitute the internal environment within the body of man. Various health and medical sciences help us to understand our internal environment. Homeostasis means the natural dynamic equilibrium of the body. Influence of mind on the body is considerable. Yet our knowledge of interplay between the body and mind, and spiritual being is very limited. Man's internal environment is constantly under the influence of the external forces of nature. Everything that surrounds man is one's external environment. Sciences like ecology, biology, meteorology, sanitation, environmental engineering, sociology, anthropology, etc., furnish complementary knowledge for obtaining the total picture of man as a part of Nature. Since both the external and internal conditions change constantly, health is not a static but a dynamic state. It is also relative with reference to the state of affairs in the surroundings. A person can be healthier (or more ill) than another person, or than in the past. Finally,

the state of health is not absolute. We can be healthier than what we are, at a particular time. This is the concept of positive health. Whenever health is promoted to a positive level, a little departure from or laxity regarding the usual rules of health may not adversely affect or upset the stable balance established. One may be said to have developed a strong non-specific immunity or protection against things which are ordinarily harmful.

There are many things that are harmful to health. These may be the disease-producing (pathogenic) micro-organisms, insects like mosquitoes that transmit diseases, animals that bite and otherwise transfer their infections to man, physical conditions like high or very low temperatures or humidity, harmful chemicals such as fumes from chemical factories and automobiles, and effluents from the industrial wastes, etc. For maintaining or promoting health, and for prevention of disease, it is important to understand the dynamic interrelationship between man, his surroundings, and the harmful agents or factors.

**Understanding Disease:** 'Disease' has been defined as a state which limits life in its power, duration or happiness. Disease is easy to understand. It is a departure from a state of health because one is out of the ecological or natural balance. In disease, there is physiological and/or psychological dysfunction of the body. Illness is a subjective state of a person who feels aware of not being well. Sickness, on the other hand, is a state of social dysfunction, i.e., a role that the individual assumes when ill. On many occasions, illness is mild and cannot be detected by available means of investigation and diagnosis; as such it cannot be labeled as a particular disease. Specific diseases are generally diagnosed only when they produce significant changes in the internal environment of man with or without leading to some symptoms like pain, fever, weakness, etc. In such cases deviation from health may be wide and the physical, mental, economic and social effects brought by the disease process have already made deep impressions on the affected individual and family. However, it is interesting to note that in many cases, the changes brought about by the disease process are not noteworthy enough to produce symptoms. Naturally such a state of sub-clinical or minimal disease cannot be easily recognized. With the modern advances of medical sciences & technology, more and more diseases can now be diagnosed as a

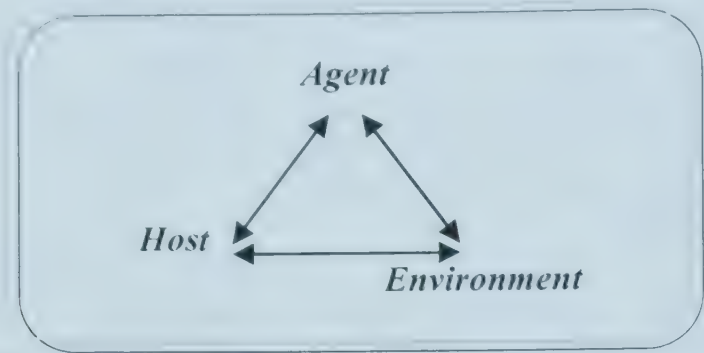


deviation from health long before the disease has produced any noticeable effects on the person.

State of disease is the effect of interactions between a person (Host), Environment and the

harmful Agent. Epidemiological triad is shown in diagram I. Prevention of disease is inevitable for maintenance of health. This can be done only by study and management of the relevant aspects of the host, agent and environmental causes of disease.

Diagram I: Classical epidemiological triad

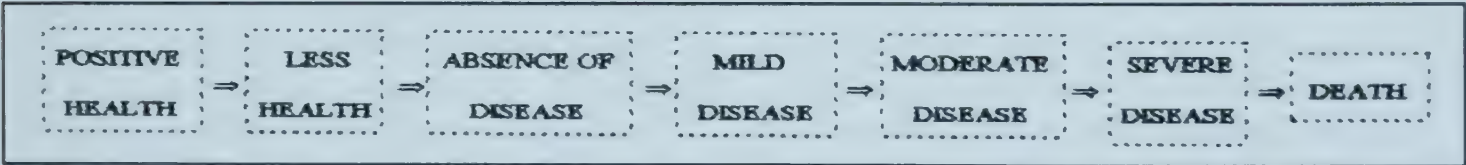


The most important element in disease is the body and mind, and not the germ or other external factor. The body is a self-regulatory, self-healing and self-cleansing wonder. We are all constantly exposed to the disease-producing agent or factor, but only few catch the disease. Our lifestyle often makes our body susceptible. The state of mind likewise changes the state of the body through the central nervous, endocrine and immune systems.

Health and disease have no separate existence of their own; they are names given to states or conditions of living things. In expressions like 'healthy baby' or 'diseased plant', the terms

'healthy' or 'diseased' merely describe states just as 'hot' or 'cold' describe temperatures of water. 'Hot' may merge into 'cold' in stages; likewise there are intermediate positions between health and disease. Health and disease are not sharply demarcated, but imperceptibly merge into each other like the colours in the spectrum of light (Diagram II). It is generally difficult to know exactly when the state of health ends and the state of disease begins. In most cases, especially in chronic diseases, the change in the beginning is imperceptible and not noticeable. The extreme unfavourable end of the spectrum is death, and is clear. But the other end of positive health is not so clearly demarcated.

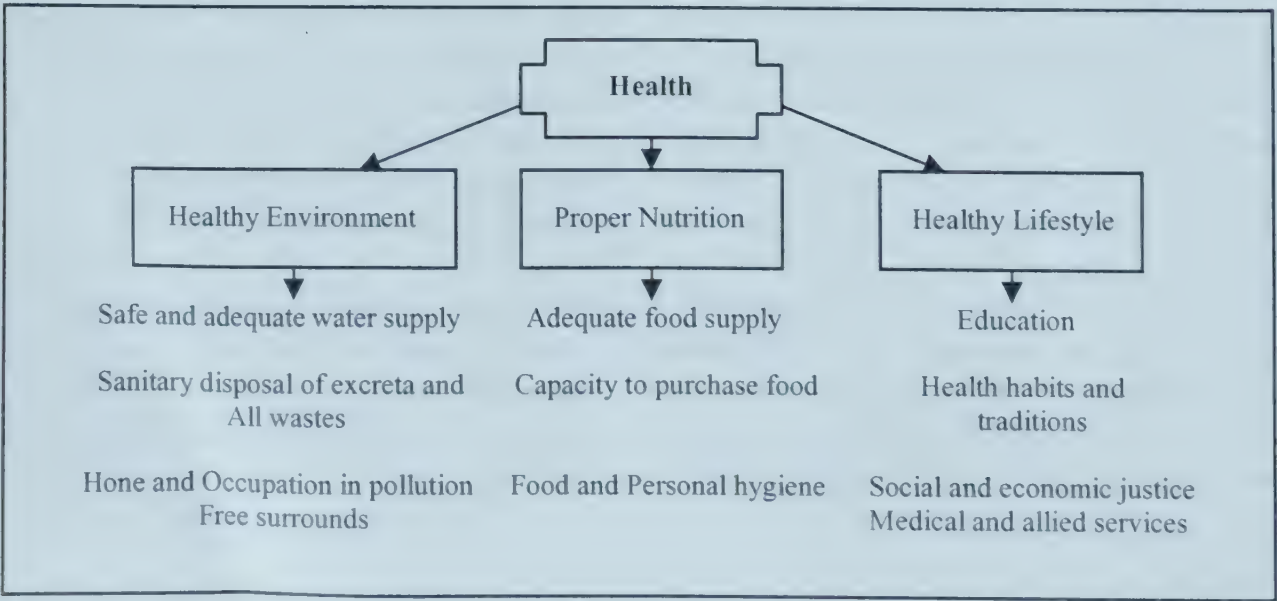
Diagram II: Spectrum of Health and Disease



**Determinants of Health:** Any circumstance can eventually affect health one way or another. But we shall consider here some important determinants

that influence health. These are (a) genetic make-up of the body, (b) environment, (c) nutrition and (d) lifestyle (Diagram III).

Diagram III: Major Determinants of Health





*Genetic constitution* or make-up determines the health status to a large extent. There are well recognized genetically determined structural and metabolic abnormalities that affect health. Even in apparently normal persons genetic constitution is an important factor determining reactions to stress. For example, whether infection with the micro-organisms of tuberculosis and leprosy will result in clinical disease or not depends much on the genetic constitution. The same is probably true of mental stress and of exposure to non-bacterial chemical poisons like pesticides. Environmental factors are also important, but usually it is neither possible nor easy to disentangle them from the genetic ones. Environmental impact on the organism, if long enough, can get programmed into the genetic knowledge of the body and influence the next generations.

Genetic disorders are caused in three ways. One group of disorders is due to the chromosome abnormalities and not strictly inherited. Example of this is Down's syndrome or 'mongolism' in which there are three chromosomes of number 21 instead of two as in normal persons. This disease adversely affects intelligence and causes other congenital defects. If sex chromosomes are involved the child may become a dwarf (XO), or hermaphrodite (XXY). The second kind is due to single gene disorders which are inherited. This may be involving dominant gene and produce multiple fingers. If recessive gene is involved and associated with consanguineous marriage, i.e., marriage between blood relations, metabolic diseases like (PKU) phenylketonuria develop. A defect in sex-linked gene gives rise to abnormalities like colour blindness or haemophilia. The third type of genetic disorder is due to complex interaction between the genes and the environment, as in diabetes or heart disorders. Multiple genes participate carrying a small effect of each gene.

We can do little to control genetic factors affecting health even when we know that the abnormality is caused by a single pair of recessive genes. Modern developments in genetic engineering may lead to some intervention. However, many traits depend on the interaction of several genes, and it is beyond our powers today to influence such inheritance in man. More and more heterozygotes carrying harmful recessive genes are being identified. For example, most carriers of the phenylketonuria gene can be detected by a phenylketonuria tolerance test. Many carrier females for haemophilia show abnormalities on special examinations of the blood. Other condi-

tions which can be so detected include retinitis pigmentosa (a type of blindness), thalassaemia and sickle-cell anaemia. In such instances, if two persons carrying the same single harmful recessive gene marry, their offspring stands a one in four chance of inheriting the trait by acquiring a pair of such genes, and suffer from the disease. In case of sex-linked disorders, half of the sons of a carrier mother may suffer from the disease, and half her daughters may be the carriers. A population geneticist may be able to predict the risk more precisely in an individual case. Marriage counselling may help in preventing such situations. On the other hand, genetic counselling is helpful if a child is born with a genetic abnormality. The probability of subsequent children having a manifest or hidden genetic disease may be worked out by a geneticist or paediatrician.

Genotype of a person indicates the genetic potential of the individual, e.g., intelligence, body build, or natural resistance or susceptibility to disease. Phenotype is the expression of the genetic potential, either natural or by nurturing. This is often dependent on environmental factors, way of upbringing, lifestyle, etc. A child may fail to attend the potential height if undernourished, or grows in hilly terrain. Without education and training, and challenge and stimulus, we will fail to reach our intellectual potentiality. With high standards of sanitation and personal hygiene, our genetic potential to resist infection will have synergistic effect. But even when endowed with the genetic resistance, we may suffer from infection if drinking-water is highly contaminated. Other factors too are the other major determinants, which unlike the genes are amenable to control.

*Environment* plays an important role in determining the health status. Crucially favourable factors of the environment are safe, accessible, and adequate water supply; sanitary disposal of excreta and all wastes; healthy housing; good climate, and home and occupation in pollution free surroundings. Apart from these physical and chemical factors, socio-cultural, economic status, political system, behavioural and spiritual components, etc., also play important role. The term '*social well-being*' is not easy to understand. It is not dependent on social status. A person can be said to enjoy social well-being when he/she feels that he/she is discharging satisfactorily the various roles that man/woman has to play in society. Thus, within your family you may be a husband or wife, a father or mother, and elder or younger sibling, etc.; outside the house you may have a circle of friends



with whom you chat, play, etc.; and during working hours you have another type of relationship with the boss, co-workers, clients, etc. If you feel that you are discharging your roles in the family, among friends, and at work and recreational places satisfactorily, you are in the state of social well-being. Feeling of adequacy will depend upon your own beliefs of how you ought to behave, and influence of others' attitudes towards you. Social well-being then depends on how a person "fits in" into his social environment. Brain-mind interaction is very important. It depends on mental health and, which in turn, affects it. Obviously, it depends on physical health too, and is influenced by the factors that determine health generally.

*State of Nutrition* primarily depends on adequate and proper food supply, capacity to purchase food, and maintaining good personal hygiene. Nutrition is one of the basic life supports, others being oxygen and water. Both undernutrition and overnutrition are injurious to health. Modern behavioural patterns and changing ways of life tend to drift mankind from the nature and ecosystem generally.

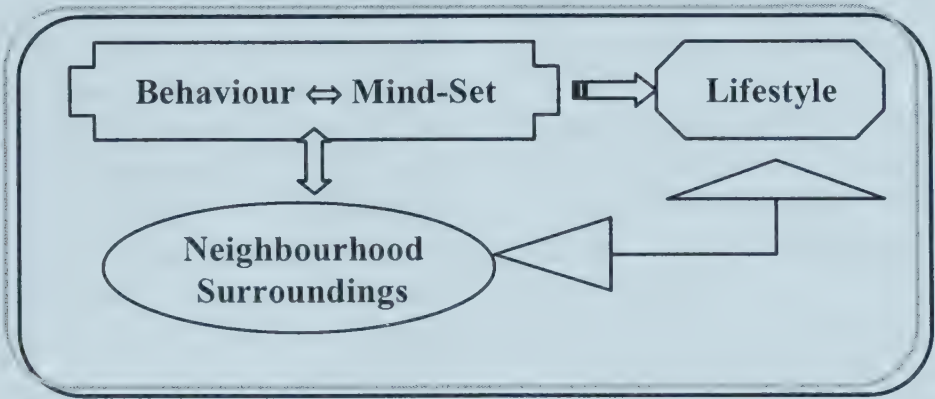
*Healthy Lifestyle and Culture* are emerging as the vital factors influencing health status. These include regularity in daily routine; behaviour; occupation; education and concern about health; economic assets; healthy habits like regular use of toilet, abstinence from alcohol, tobacco, etc.; washing hands before meals and after using toilet; plant-based diet rich in vegetables, fruits and pulses; moderation in food, drinks, recreation, etc.; personal hygiene; positive thinking;

consideration and helpfulness towards other people; coping with stress, contentment, regular exercise and activity, diverse interests; knowledge or awareness of healthy practices; and so on. It is important to note that a community which observes simple hygienic rules is much healthier than the one which does not follow. Mere provision of free drugs, immunization services and sanitary conveniences may not necessarily benefit people, if these are used indifferently or not at all.

**Determinants of Lifestyle:** The manner and method in which we spend each day of our life constitutes our *lifestyle* (termed as *dinacharya* in Ayurveda). Ayurveda prescribes *dinacharya* (means a daily routine) which will make the lifestyle healthy. All cannot follow a uniform lifestyle (way of living). The prescription has to be client specific and friendly. Professionals, businessmen, farmers, artisans, students, artists, politicians, sportsmen, tourists, skilled and unskilled workers, etc., have to pursue different paths. Given healthful environment, if we are able to remodel and change our lifestyle, drive of health promotion will be smooth and productive. If lifestyles are to be changed for better health and happiness, it is necessary to understand different factors and situations which influence and fashion the ways in people start living. Let us probe into this issue.

Lifestyle is an effect of conditioning as a result of long term interaction between personal or group mind-set and behaviour in a given habitat, i.e., surroundings and neighbourhood. Diagram IV depicts interplay between behaviour and mind-set vis-à-vis family/individual lifestyle.

Diagram VI: Genesis of lifestyle

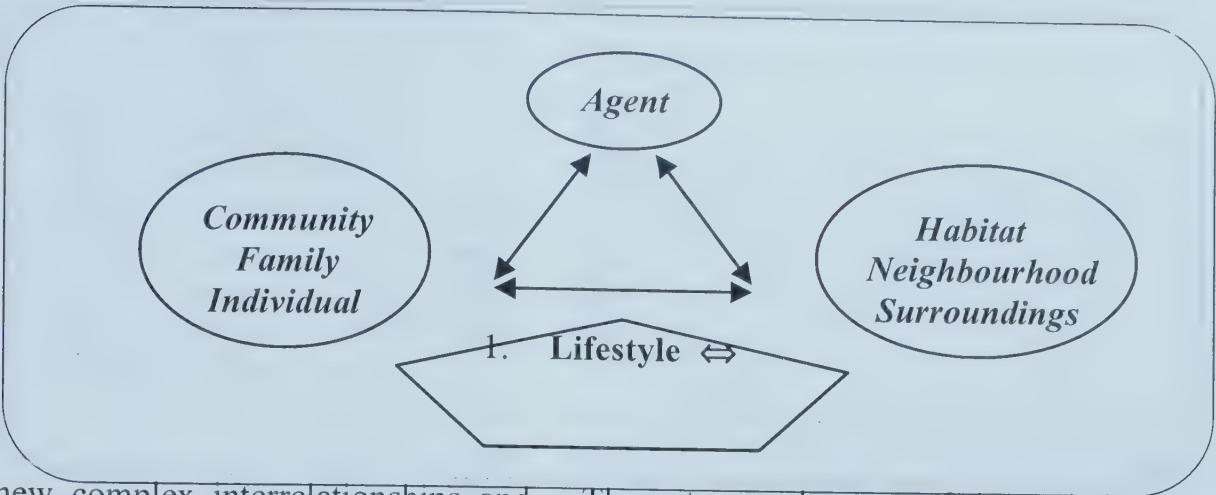


It is because of this influence of the mind-set and behaviour on lifestyle, the epidemiological triad (Diagram I) of agent, host and environment merges into a lifestyle. At the personal and family

level, epidemiological triad gets more and more specific and complex phenomena. It is here that the social, cultural, political, economic parameters come into operation. See Diagram V.



Diagram V: Altered micro-level epidemiological triad



This new complex interrelationships and varying circumstances and situations human beings live, several lifestyle patterns emerge. Several factors such as age, sex, education, occupation, etc., contribute to the development of different lifestyles.

The nature and extent of the variations depend on the differential influence and weightages of different factors listed in Table 1. It is needless to reiterate that various macro-environmental factors also influence the lifestyles in their own ways.

Table 1: Behavioural and mind-set factors determining lifestyle

Determinants of Personal Aspects of Lifestyles
<i>(Agent, host and environmental aspects of epidemiology merge in this situation)</i>
1. Self-influence because of understanding, information, knowledge and skills acquired either actively or received passively.
2. Family life, rearing and upbringing during childhood, examples set by the parents, siblings, relatives, etc. Schooling, enlightenment, role models and ideals.
3. Community life and upbringing with the neighbours, relatives, friends, etc.
4. Availability and experience of the private and public facilities for drinking water, sanitation and hygiene. Quality and efficiency of public health system.
5. Prevailing standards of cleanliness, water supply, sanitation, housekeeping as observed and experienced at home, work places, eating establishments, public dwellings, recreation facilities, sport grounds, markets, roads, open spaces, etc.
6. Influence of religious and traditional practices in vogue. Aesthetics and customs.

It is also true that factors such as health consciousness, knowledge on health and disease, and willingness to take steps to prevent diseases or become healthier, do change behaviour. A good example is the increasing use of bottled mineral water for drinking while on travel or eating out in order to prevent alimentary infections or stomach upset. Health behaviour is monitored and modified by the mind. A family or an individual who is health conscious may use a particular health facility or follow a specific hygienic practice. However, this does not guarantee that they will necessarily do what they did in the past or continue to behave consistently or use available facilities.

Many incidences of disease or ailment, occurrence or absence, are due to the differences in the micro-ecosystems which influence human behaviour and lifestyles. Improvement in public health will certainly prevent infectious diseases in some families. Unfortunately, this may not be universal for all persons and families. The problems of equity and social injustice remain unsettled. Therefore, finding out the lifestyle factors of ill-health which are operating in a particular family or individual is important. The corrective measures will have to be family and person specific and not bookish or customary or fragmentary. Secondly, such preventive & promotive measures should be effective in a given



community settings and time. Generally, such measures cannot be universally applicable, unless they are verified & evaluated for wider application.

**Globalization and Lifestyles:** Metaphoric shrinking of the world during the last century has started the process of globalization or 'equalization' effect. As regards health, our major concerns are food, clothing, housing, and additions such as for drugs, tobacco and alcohol.

Take the case of nutrition. On this planet man has settled and lived for hundreds of thousands of years in very diverse and dynamic habitats (environment is neither a satisfactory synonym nor description of the term habitat). During these long years, man was able to eat only locally available foods, and by trial and error, these foods were combined so as to evolve diets which provided the nutritional needs. On the North Pole there was no chance of eating (even seeing) green vegetables, how come the Eskimos maintained good health! Physiological adjustments were made. The metabolic pathways were tuned to digest these local foods (diets) either by modifications or closing some or opening others. Manufacture of vitamins by the flora of intestinal microorganisms is well known. The fact remains. We have a plethora of foods and diets, such Chinese, Japanese, American, European, African, and Indian. Within these broad groups there are more specific entities, e.g., in India we have entirely different foods and diets in Bengal, Maharashtra, Punjab, Tamil Nadu and else where. With globalization, all kinds of foods are available at door steps. With affluence, eating such foreign foods has not only become fashionable and common, but also a status symbol. Our gastrointestinal system and metabolic processes are conditioned for traditional diets (those eaten by forefathers), and it stands to reason that entirely new diet will disturb digestion. (Eating foreign foods is as unwise as running a petrol engine with diesel.) Adverse effects such as indigestion, obesity, etc., are obvious. Corrective measures are also being introduced. It is now common that the travel agents are now providing local foods to the tourists visiting abroad. Most of the migrants stick to their traditional foods even for generations. Whatever said about food applies well for the housing and clothing.

With globalization, there is also cultural and spiritual pollution. Value systems are often conflicting. Commercial interests have resulted in some developed countries dumping their dangerous wastes which are hazardous to health, in the poor

countries. The products such as tobacco products are exported and promoted in the developing and poor countries, when such products are either banned or their use restricted in the country of origin. People use neck-tie during tropical summer even if they are uncomfortable. These borrowed manners and fashions may prove harmful to health. However, this is very simple analysis and views of the changes. The trans-cultural interaction of over couple of centuries as a result of trade, political invasions and religious aggressions, still continues even after the post-world war II era of political independence of the colonial States World over. The Eastern lifestyles are undoubtedly and undesirably getting influenced by the Western lifestyles. The changes are often subtle nonetheless many, mostly the so-called educated, tend to copy the West blindly.

Science and technology also influence lifestyle. They are expected to bring comfort to man and not evils of pollution, damage and degradation of environment, and ecological imbalance. The intention of raising the topic of globalization is not to go into the remedial measures, but to stress its significance. Nevertheless, human concern should be to retain and promoter human values and spirituality while endeavoring socio-economic development. Reverence for nature and respect to traditions are indispensable. Lifestyle can be neither anti-nature nor unnatural, because it will be anti-health. Very few individuals can withstand this general onslaught. Entire society should be proactive in this regard. The need of the day is to promote green lifestyles as most of Bharatiya villagers live. Movement for adopting green lifestyles is taking roots in the Europe. As regards the lifestyle, most of the urban dwellers in India are 'Indians' and not 'Bharatiya'.

**Lifestyle Constituents:** How to go about making lifestyle healthier? What are the guidelines a person should pursue for daily routine activities that are easy to follow, keeping in mind personal compulsions, limitations and requirements with an objective to acquire and maintain personal and community health. As pointed out earlier, lifestyles vary from person to person and in the same person at different times and places. Flexibility is indispensable. In order to plan and lead healthy daily routine, one has to study, empower oneself and learn to critically look at one's behaviour and activities in regard to the following items; and modify these, in a self determined manner, and endeavour to move towards better health and



prevention of illness as and when necessary. This is very difficult to exercise. What is required is to transfer of appropriate information, bring about changes in the mind-set and amend behaviour. This will be function of the formal education system, electronic media, journalism, setting role models, NGOs and counselling services. The following items are to be attended to:

**1. Regularity:** Regular daily routine keeps our spirits up and makes us feel fresh. Regularity tunes our daily routines and habits to the bodily cycles and rhythmicity. Daily routines, like meal, defaecation, sleep, rest, work, etc., prevent imbalance within a system. In the alimentary system, if intake of food is regular, processes of digestion, assimilation and elimination are synchronized. All hygienic practices are to be followed regularly. Without some kind of regularity and rhythm, music cannot be enjoyed, so also health.

**2. Moderation** is the golden rule of health and has to be followed scrupulously. This holds true for food, rest, work or recreation. Over-doing or over-acting or over-indulgence can be harmful; a middle path and avoidance of extremes has been advocated even in Indian scriptures which advise *ati sarvatra varjayet* (discard excesses everywhere). In the case of nutrition, it is ideal to eat little of every food but more of nothing.

**3. Personal hygiene** and cleanliness form the basis of healthy behaviour and the backbone of lifestyle. The expression *personal hygiene* is often confused and equated with personal cleanliness. Cleanliness is certainly a part of personal hygiene, but the scope of personal hygiene is much wider. It is the science and art of preserving and promoting health primarily through the active efforts which are within the scope of an individual. It is practised through inculcating sanitary habits and healthy way of life. It is an efficient tool in our own hands to attain good personal health. Ill health is due to unfavourable interaction between an individual, the harmful agent and the environment. If an individual is constitutionally strong enough, and is well disciplined in regularly observing good personal hygiene, he/she can neutralize the adverse effects of the offending agents and the unfavourable environment. The following factors constitute personal hygiene.

(a) **Knowledge of health and disease:** It is necessary to have fundamental knowledge about health and techniques of acquiring it. Similarly, one must understand about disease, how one suffers

from it and how to prevent it. Greatest strength lies in knowledge which should be kept up-dated.

(b) **Motivation:** Sanskrit verse, “*Shubham karoti kalyanam, arogyam dhanasampada*” (work for welfare, health and wealth) is often cited but not much practised. This is because intrinsically health is not valued. Importance of health is usually realized only when it is lost. Mere possession of knowledge is not enough for action. How many people have given up smoking cigarettes because it is known to cause cancer? All depends on how much importance we give to health, and to our attitude and concern towards health. Health is not the aim of life, but the means. Without health very little can be done. Happiness and efficient productivity are the fruits of good health. Excellent health is the key to success in life and all of us must acquire it. Since in everyday life many harmful influences threaten health, it is absolutely necessary to be vigilant and observe rules of personal hygiene. Active efforts are possible only if we value health and are well motivated to be healthy.

**I Physical environment:** Personal comfort is required for happy life and efficient work. It is productive, unless abused. Physical environmental factors such as proper ventilation (air exchange), atmospheric temperature and humidity, adequate lighting, absence of noise, etc., play an important role in maintaining good health. Personal factors like keeping mouth and teeth clean, bathing, cleaning and change of clothing and foot-wear, and the social factors like satisfactory pecuniary condition, good occupational and working conditions, family life, and good and true social friends (in need), the state of mental health, etc., also influence personal comfort. Regular attention to these factors is necessary. We may not have full control over some of these factors. However, much can be done; there is no excuse for neglect.

The home and place of work should not be stuffy or overcrowded. Good ventilation means that there must be adequate circulation of air. The residence should be free from excessive heat, chill, undue draught, as well as bad smell. Lighting should be adequate for the activity undertaken, e. g., more light is necessary for close and delicate work like repair of wrist watch or for reading a telephone directory. Less light may be sufficient for work like carpentry or for walking or socializing with friends. Glare as well as excessive shadows and flickering light harm the eyes, and should be avoided. Clothes should be properly selected according to the season and the type of



protection desired. Clothes should be white or lightly coloured, thin and loose in summer. Heavy, dark coloured and well-fitting clothes are more protective during winter. Aesthetically and from the point of clean habit, underclothes should be changed and washed regularly. The material should be easily washable and permit normal functioning of the skin. Foot-wear should be used and wisely selected. Foot-wear should not be uncomfortable and should never be so tight as to interfere with the free movements of the toes and feet. A little oversized shoe is better than an undersized shoe. Shoes and other foot-wear should be repaired; and changed when it is worn-out. Regular use of shoes not only protects the feet from mechanical injuries, but also to a certain extent from infections such as tetanus, warts, hook-worm, and from the danger of snake-bite.

(d) Personal cleanliness: Clean habits are basic requirement for good health. Our environment is full of harmful agents like the disease-causing germs. It is better to avoid contact with them. The hands should always be considered as contaminated (polluted with harmful germs). Besides taking bath daily and wearing clean clothes, developing good hygienic habits from early childhood is of prime importance. Washing feet or removing the shoes before entering the house; washing hands thoroughly with soap and water every time after going to toilet or latrine and before cooking, handling or eating food; cleaning teeth in the morning, after eating and again before going to bed; washing and periodically dressing hair; cutting the nails short and keeping them clean; are all examples of hygienic habits. Clean habits and use of soap will reduce the chance of getting some common infections and spreading them to others. Eyes also need special care. In the process of body growth and repair, billions of cells die daily. These are replaced by the new ones. The dead cells are to be removed from the body. Similarly, undigested and unabsorbed food, and the waste products of digestion, absorption and metabolism need to be eliminated. Body excretes these wastes and toxic substances through the bowels, urinary bladder, lungs and skin. Cleanliness aids excretory function. The care of the body regarding food, exercise, rest, measures for protection against diseases, etc., which are necessary for the preservation of sound health have been described under the appropriate chapters of this book. Regularity of bowel evacuation every day is conducive for the preservation of health.

Cleanliness is also a social responsibility and besides our house, we should help to keep the public places like roads, parks, offices, etc., clean and tidy. Smoking in public places, and burning refuse and garden wastes add to air pollution. Habits like indiscriminate spitting and throwing rubbish anywhere are detrimental to health. Defaecation by the roadside and in open ground, or urinating at places other than urinals and latrines are examples of anti-social behaviour. Every effort to change these bad habits and to encourage the use of sanitary latrines and urinals is worth the trouble. Acts like coughing and sneezing are likely to spread air-borne diseases such as tuberculosis and influenza. The risk should be reduced by holding a handkerchief in front of mouth and nose when coughing or sneezing.

Some common habits have definitely been proved to be harmful. The best examples are of smoking and chewing of tobacco, and excessive alcohol consumption. The scientific evidence against these harmful habits is so clear that we should stay away from these. Persons having these habits should give them up.

(e) Exercise and activity: Regular and moderate exercise tones up the various systems of the body and helps to maintain its physiological efficiency. It keeps us active and cheerful. In modern way of life there is less and less need of physical activity in daily routine. Sedentary life coupled with the intake of excessive food may lead to obesity, especially if there is a familial tendency towards it. More on this topic is covered later.

(f) Rest and recreation: Physical and mental relaxation is necessary to avoid fatigue and regain efficiency. An adult needs six to eight hours of sleep daily. Children require more sleep. Rest after physical and mental activity is refreshing. We should have varied interests in life. Hobbies, friends, picnics, vacations, meditation, play, laughter, etc., make life cheerful and helps to have peace of mind. Periodic change of activities during daytime is also beneficial.

(g) Immunization and prevention of infections: Everyone, especially children, should be protected from the common communicable diseases. Immunization against tetanus, diphtheria, whooping cough, poliomyelitis, typhoid fever, etc., is simple and effective. Immunization schedule should be followed scrupulously. In order to avoid infection, avoid taking children while visiting sick friends and



relatives at home or in hospital. After visiting or attending to a person who is ill, especially if he/she is suffering from an infectious disease, it is wise to change clothes and to wash hands and other exposed parts of the body thoroughly.

(h) Medical care: All illnesses should be promptly attended to and adequately treated till cured. Self-care of minor ailments such as headache, loose motions, and injuries like trivial burns and small wounds, is possible. Everyone should be able to provide first-aid and home-nursing to others. Any defect in the body should be corrected soon after it is detected. Any physical deformities like squinting eye, carious teeth, etc., should be corrected. Many diseases can be effectively treated and cured if diagnosed at an early stage. Examples of such diseases are many, e. g., tuberculosis, diabetes, high blood pressure, cancer of various parts of the body, etc. Periodical medical check-up is valuable in this respect.

In brief, there is no better tool than personal hygiene and care for attaining self-sufficiency and self-reliance in health acquisition and maintenance. It is a magic formula for health. We should, therefore, pay proper attention to various items indicated in this chapter.

**4. Diet:** Good nutrition through proper diet is the foundation of good health. Diet should not only be adequate but also be balanced. Regularity in meal times is important. It is excellent habit not to take the same articles of food as a routine, but have as much variety in food as possible. Most food taboos, likes and dislikes, usually have no scientific basis. It is not safe to eat food that has been exposed to house-flies and dust, or handled badly, or poorly stored or otherwise suspected to be contaminated. Therefore, food should not be handled with bare hands. It should always be covered to prevent dust and flies contaminating it, and stored in a refrigerator. Cheaper foods are not necessarily less nutritious, e. g., green vegetables are cheaper, but still are of greater nutritional value than costlier vegetables like cauliflower. For good health, vegetarianism is positively superior to non-vegetarianism. Foods of animal origin increase the risk of development of cancer. Further to the risk of infection, fast and processed foods contain excess of salt, sugar and fat; all harmful to health. Overeating is harmful to health.

According to Dr Lester Breslow, a public health expert in the United States of America, obesity and physical inactivity are reminiscent of

the ancient sins of gluttony and sloth. Apart from maintaining good health, it is now established that with proper dietetic care one can prevent not only gastrointestinal infections, but also the non-communicable diseases like obesity, high blood pressure, coronary heart disease, diabetes and cancer. Moderate meals, eating home-made food, eating less fat and fried items, eating more green leafy vegetables and fruits, avoiding improperly stored or contaminated foods, eating less of non-vegetarian food, etc., are advisable. Experiments have shown that reduction in caloric intake results in significant increase in longevity of animals. Therefore, it may be better to maintain optimum weight, i.e., maintain weight a little less than normal and never overweight.

**5. Activity and Exercise:** Physical activity is the essence of life: without it the body loses vigour and efficiency. Physical activity depends upon physiological, behavioural and psychological factors. Sedentary occupation and easy way of living are detrimental to health. Apart from the work, regular exercise should form an integral part of life. Exercise is a purposeful leisure time activity aimed to achieve fitness and good health. Every human being needs exercise. It is only in an exceptional condition like acute heart attack where complete bed rest is advised and that too for a short period of time. There are many ways of exercising the body, but all the limbs, abdomen, spine and the cardio-respiratory system need to be exerted for fitness and trained to function better. Exercise suitable for age, may take the mode of drill and gymnastics, or traditional twelve *Suryanamaskars* (a popular combination of yogic poses) with proper technique, swimming, and outdoor sports like *kabbadi* or *atyapatya* (Indian Games), tennis, football, etc. Exercise should be of moderate intensity and of 30 to 50 minutes duration. A minimum of three days' exercise in a week is necessary. We can go for a good swim, join a gymnasium or health club. Sophisticated equipment may be necessary for training in acrobatics. Each exercise has its own advantages and limitations. We have to select those which suit to our requirements. Common difficulties or excuses for failure to take exercise are lack of time, bad climate, lack of space or privacy, ill-health, and associated generally imaginary risk. Good exercise is always refreshing and is a better motivating factor than mere health consciousness. Family members and friends who exercise regularly often act as role models.

The aim of exercise is fitness and health. Regular exercise will help us to shed unwanted



weight, or to maintain normal weight. Exercise helps circulation of blood, improves breathing, and aids digestion of food. The movements of joints remain free and muscles are kept in proper tone. The mind is relaxed and sleep is sound. Sex life is better. Regular exercise will help us to cope with stress better. The shape of the body is maintained giving a youthful appearance. All these advantages of exercise come with regularity of exercise. Men not taking sufficient exercise, have about two times the risk of coronary heart attack, compared to more active counterparts. Many infirmities & disabilities of old age appear to be the result of habitual inactivity rather than aging. The importance and benefits of taking regular exercise need to be stressed because there is a reduction in physical activity in the modern lifestyle affecting adults & adolescents.

The objectives of exercise are: (a) keep the body in good shape and gain strength, (b) retain efficiency of the heart & lungs for cardiorespiratory fitness, (c) maintain suppleness, elasticity and balance, and (d) achieve endurance, i.e., stamina & capacity to work for long periods. These four aims can be achieved through a set of different exercises. For building muscle mass and strength, it is necessary to do exercises against resistance, e.g., gymnastics like *jor* or *baithak*, weightlifting, weight training, use of dumb-bells or springs, etc. For cardio-respiratory fitness, aerobic exercises which consist of free movements of many joints are required. Aerobic means using air, i.e., utilizing oxygen by contraction of muscles. When muscle contracts, it needs energy which comes from glucose and oxygen. Blood from the arteries supplies oxygen and glucose to the muscles. Blood enters a muscle when the muscle is relaxed. When a muscle contracts, the blood vessels get squeezed and blood is expelled out of the muscle through the veins. Blood can now enter into the muscle only when it next relaxes. Were the muscle to remain contracted, fresh oxygen and glucose are not available. Muscle then uses glycogen and fat stored in the muscle. Energy is obtained without oxygen. This anaerobic activity is harmful to the body due to formation of toxic products like lactic acid and acetone during anaerobic muscle contraction. For aerobic activity, muscles must contract and relax alternately. This is achieved through brisk walking, running, swimming, playing, or doing calisthenics.

To be effective, the exercise must increase the pulse rate. Normal resting pulse rate is around 72 per minute for an adult. The maximum pulse (heart) rate is arrived at by formula:  $220 - \text{Age} =$

X. During exercise, it should reach at least to a level of X multiplied by  $\frac{2}{3}$ . This is the target pulse rate. Table 10.1 provides a ready reckoner. To illustrate, if a person is 64 years of age,  $220 - 64 = 156$ , and  $\frac{2}{3}$  of 156 is 104. So his exercise should be brisk enough to increase the pulse rate to 104 per minute. Such a pulse rate should last for at least for 11 minutes, minimum five days a week. Some experts recommend duration of 20-30 minutes for three days in a week. As a beginner, we should start with the low target. As we feel fit, increase the target, but never more than the high value in Table 2. Endurance is best acquired by undertaking slow muscular activities like a walk or swimming sustained over a long period of time. A combination of these four types of exercises is required to obtain benefit from exercise, e.g., *Suryanamaskars* and calisthenics, weight lifting and yoga, or swimming and games.

Brisk walking is the ideal leisure time activity in modern life. As an exercise, walking should be adequately brisk and aerobic. Brisk walking is neither fast nor racing, it is in between. It is a moderate and rhythmic exercise which increases the respiratory and heart rates. Walking is much safer aerobic exercise than jogging, dancing or other hectic activities since the force of impact on feet is much less in walking. It is inexpensive because no special facilities are required except a pair of socks and good quality walking shoes which are comfortable. Use of shoes prevents injury to the joints and muscles of the legs. Brisk walking helps us to (a) keep fit, (b) maintain weight, (c) improve tone, flexibility and strength of muscles, (d) reduce stress, (e) improve stamina, and (f) protect against diseases, as it helps to reduce blood cholesterol level, and prevents bones from becoming brittle in old age. However, exercise benefits of brisk walking come only if it is adequate, regular and consistent and life long. A minimum of 30 to 40 minutes of brisk walking for three to four km and three to four times a week, along with recommended increase in the pulse rate are cardinal features for success. See Table 2.

It is said that walking makes for a long life. This is because walking not only promotes health, but also provides remedial measure for many illnesses. These includes conditions such as back pain, joint pain, coronary heart disease, high blood pressure, pain before menstruation in young girls, respiratory problems, ailments of joints, varicose veins, rehabilitation of patients after heart attack, surgical operations, etc.



**Table 2:** *Target Pulse Rate on Exercise by Age*

Age (Yr.)	Target Pulse Rate per Minute		
	Low	Median	High
20	120	133	170
25	117	130	166
30	114	127	162
35	111	123	158
40	108	120	153
45	105	117	149
50	102	113	145
55	99	110	140
60	96	106	136
65	93	103	132
70	90	100	127
75	87	97	123
80	84	93	119

'Yoga' and 'Exercise' should be considered as the very basis for a good health. Yoga and exercise are independent topics, but they are complementary to each other and not a substitute for one another. Each plays a vital role. Yoga is that extraordinary, exemplary uniquely Indian technique which helps man to develop a deep awareness of self, of every vibration and pulsation within — at the body, mind and intellect levels, by virtue of which the internal and external forces can be mastered. The word 'yoga' is derived from the Sanskrit root *yuj* which means to join. The aim of yoga is to achieve a union between the individual spirit (*atman*) with the universal principal at the level of consciousness. Even though there are many pathways of yoga, the ultimate aim is identical, i.e., the union of the individual soul with the universal principal. This leads to a state of intense happiness.

**6. Positive attitude and thinking:** Training and development of mind are essential prerequisites to good health. Logical thinking and thinking of alternate solutions helps in choosing appropriate, effective and practical things to do. Value systems based upon positive attitudes and thinking. Quite often worry is non-productive. The best tonic for the mind is enduring curiosity about an ever-changing environment. Optimism strengthens our power.

**7. Occupation:** Without purposeful occupation, life is not worthwhile. Occupation depends on one's likes and dislikes, education and training, familial background, financial status, opportunities,

entrepreneurship, etc. For good health, we should avoid stress, anxiety, hazards, and sedentary jobs, but compensate through appropriate measures like many and diverse interests and hobbies, exercise, yoga, etc.

**8. Stress:** *Stress* is the result of inability to cope with a difficult situation or inability to find solutions to problems. Other cause is habitual or excessive worry. The human body is amazingly resilient and one can find ways to unburden or work the tension out of the body to begin a fresh and rejuvenated. Things often don't happen according to one's expectations and this causes stress and frustration. A change of activity, whether work, music or a hobby, helps in relaxation. The best way to get rid of stress is to train the body to face (such) a stressful situation. Insecurity is a cause of stress, and one has to try to do away with it. Resorting to tobacco, alcohol or addictive substances ('drugs') will not help. Engage in some honourable work, yoga, meditation, exercise, music, movie, drama, playing games, painting, hot-water bath, massage, laughing out things, going to club or party, meeting friends, holiday, touring, sightseeing, etc. These are some of the activities which can help to reduce tension.

Stress has both physical and psychological manifestations, e.g., high blood pressure, peptic ulcers, insomnia, gastrointestinal disorders, nervous breakdown, etc. There is no point in hankering for what cannot be or what is not. There should be no gap in a person's expectations and reality, and any shortfall should be accepted gracefully. We must



be able to adjust to our environment, care for people around us and develop interests which take us away from everyday living. We should be willing to face life squarely.

**9. Rest and Recreation:** Relaxation is necessary to avoid fatigue and regain efficiency. Rest and recreation are of many types and the choice differs with person, place and time. Available opportunities, economic condition, convenience of time, etc., are other factors that need attention.

**10. Basic Needs:** We should remember that contentment and happiness in life do not much depend on money, social position or material possessions. The basic emotional needs of man are: (a) love nurtured by sympathy, tenderness, helpfulness and tolerance, (b) companionship for prolonged isolation cannot be tolerated for long, (c) sense of belonging, and recognition or respect from the people around, (d) independence together with responsibility, (e) sense of achievement and creativeness, (f) faith which gives direction and purpose in life, (g) satisfactory sex-life and happy marriage, and lastly, (h) physical, emotional and material security. It is essential to balance physical, social and spiritual needs – the ultimate determinants of health, efficiency and happiness.

A long term study in California, USA, revealed seven big hazards in modern lifestyle. These include obesity, physical inactivity, smoking, excessive intake of alcohol, sleeping too much or too little, eating between meals, and skipping breakfast. In combination, these poor practices could double chance of dying prematurely. Further, even couple of these practices could lead to disablement within ten years or later as compared to persons with no more than two of these habits.

#### **Towards Healthier Lifestyles through Research:**

With the foregoing information and background, how to go modify lifestyles? How to change the mindset and behaviour? Can such a change be sustained? What is the role of spirituality & human value system? Obviously there can neither be simple or single formula nor ready-made answers. Health System and Behavioural Research and the efforts to modify lifestyles should go hand-in-hand in the same manner R&D operates in the progressive industries. Epidemiology of lifestyle will be fascinating exercise.

Health is one of the topics on which incomparable and divergent opinions are given and

recommendations made. Such contradictions cause confusion and skepticism. For most of the ailments of the alimentary system, the traditional treatment is fasting, with or without fruit juice, & naturopathy and Ayurveda advocate this. But modern science recommends adequate nutrition even during diarrhoea; and the causes of diarrhoea are many – from fright to infection, from overeating to starvation. Thus, there cannot be any hard and fast rule. Everyone has to use discretion, trial and error, faith and confidence, and evolve a solution that suits our constitution best.

Keys to healthy living are active life, moderate meals, love and respect to and from others, and enduring curiosity and coping with an ever-changing environment. What is important is to have a holistic approach and seek a harmonious balance between the mind, body and spirit. Sound health is a prerequisite for all success and happiness in our lives. To be healthy means to have a positive state of physical, mental and social well-being. To maintain a good physical health, a balanced diet, cleanliness, regular exercise, prevention of ailments, and healthy habits are essential. Mental health is sustained by cultivating a sense of contentment. A healthy mind would fix a goal for life and strive to achieve it. We should have compassion towards sufferance experienced by others and have awareness of others' needs. We should be able to keep our mind entertained and have a capacity to enjoy all aspects of life including arts, crafts, sports, music, dance, drama, sculpture, etc. Social health is a vast subject. It may be enough to say that if the society is healthy, members of the society feel secure and safe. Ethical and moral values are respected. We should accept our social responsibilities with grace. Conceptual design for remodeling lifestyle to make it safer is given in Diagram VI.

Fortunately, in every society, there are persons and even communities who have developed and maintained healthy lifestyles despite adverse habitats and socio-economic conditions. This may be one of the ways to start. It is also possible to design more specific conceptual designs to work on. There are several lifestyle factors and items which are known to either promote or undermine personal or community health status. Even so, there is more of ignorance and vagueness than clarity and insight. Social scientists & communication experts should take up these and similar issues for study. Diagram VII gives a new design of interdependent and interrelated relationships for research.



Diagram VI: Spin-off of host and environment exchanges and behaviour and mind-set

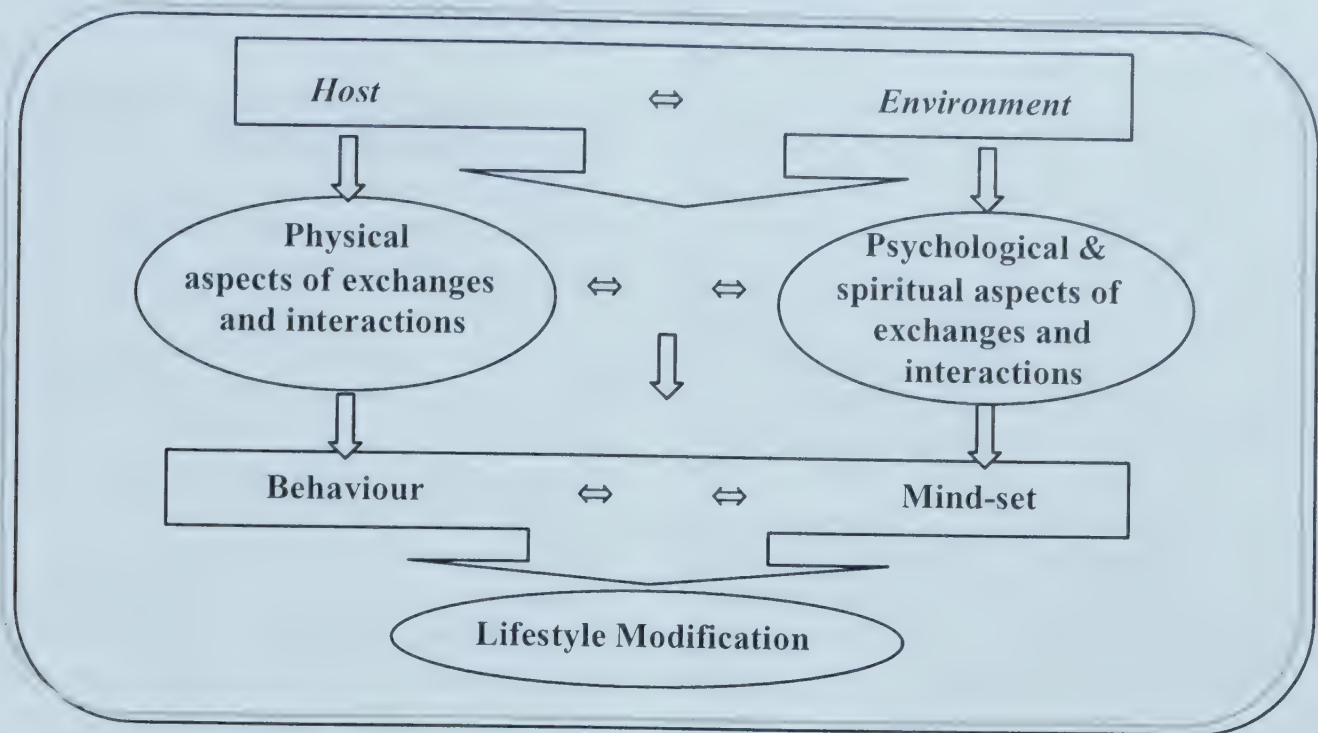
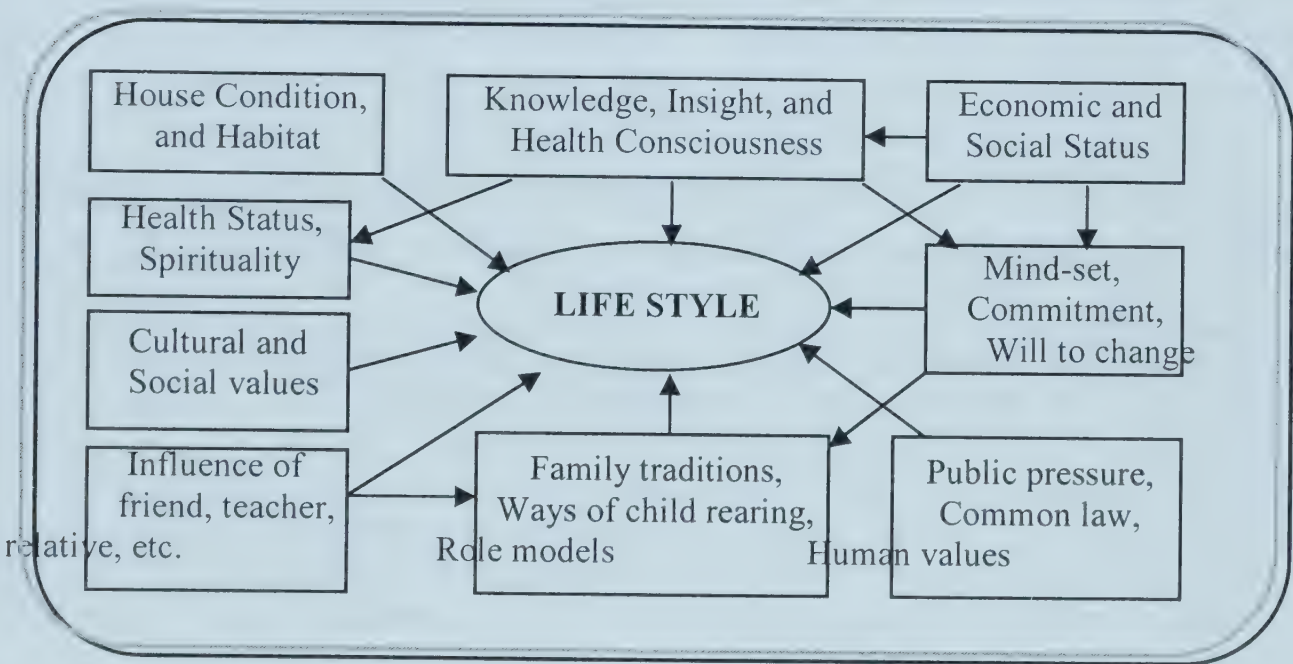


Diagram VII: Some Determinants of Behaviour and Lifestyle



**Note:** These determinants may be under: (a) common control of individual and family, (b) control of family and community, or (c) control of individual

All this is not easy. Scientific advance, in itself, will not promote health so long as man has likes and dislikes, and activities which unavoidably expose him to hazard & worries. There are factors influencing a person's health, viz. genetics over which we have hardly any control. Environment can be less hostile with progressive improvement in the standard of living. Socioeconomic development will improve the quality of life of the people. Unfortunately, many of the traditions and customs have become rituals or meaningless routines. Hygienic principles behind these practices are lost. Indiscriminate spitting is largely due to the lack of

aesthetic and civic sense, rather than a deliberate act to pollute environment or promote the spread of infection. Similarly, many people do not spit indiscriminately simply because they regard it as not stylish or sign of backwardness and not awareness of tuberculosis. These data are of great relevance to the expected behavioural reforms such as discouraging spitting indiscriminately. Just telling people that the habit is unhygienic will have very little impact. Further, there no unequivocal evidence that ICE (Information, Communication and Education) drives have resulted in sustained change in the behaviour of the people.



To be pragmatic, the main paradox is the uncertainty about what constitutes lifestyle which can be considered as health wise optimum. We have two broad types of lifestyles: (a) of the affluent societies in America and Europe and (b) of the poor societies in Asia and Africa. Affluent society lives in a safer environment with much less health hazards than the people in poorer countries who live in much hostile situation and are exposed to the risk of diseases of poverty, insanitation and infection. The lifestyle of the affluent people, however, makes them vulnerable to the ailments of cardiovascular system, diabetes, cancer, mental derangements, accidents, etc. Infants and young children with congenital or heredity defects are made to survive in the affluent societies, while such babies die their natural death to much respite to the poor. The traditional lifestyles have evolved naturally over thousand of years as a part of ecosystem of this planet. These are gradually but certainly drifting towards the affluence ways of life. Should we wait for the time to answer or heed for research to know in advance? These are then the

challenges we have to accept for better health and happiness.

**Epidemiology of Lifestyle & Health:** Epidemiological studies of different lifestyles may not provide immediate interventions, though it will provide necessary insight to the influences that help or mar the development of lifestyle patterns which are congenial for health promotion and disease prevention. Just note the vast qualitative and other differences in the lifestyles of the youth and the aged; the richest and the poorest in any country, the village landlord and the peasant; minister and ordinary member/worker of a political party; top bureaucrat and a clerk; people in a true democratic country and those in dictatorial regime; the poor in USA and the counterpart in Bangala Desh; the grandparents and the grandchildren; and so on. Such studies will require trans-disciplinary teams of the experts and long term funding and support of the funding agencies. We reach the same wrapping up; these are then the challenges we have to accept for better health and happiness.

### Bibliography:

1. Deodhar, N.S., The Writings on Preventive Medicine and Public Health, Volume I and II, pp 1152, 2003, self-compilation and publication, Pune, India.
2. Deodhar, N.S., Sathe, P.V., Our Health in Our Hands, Ed. Deodhar, N.S., and Sathe, P.V., School of Health Sciences, University of Pune, pp 358, Jan. 2001.

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## 2. Disruption of Abdominal Wounds

**Introduction:** It is quite a surprising fact that in surgical practice to see an abdominal wound disrupted, when one expects it heal. Naturally, it leads one to study the underlying causes of this tragic complication, i.e., of non-healing of wound.

Paracelsus<sup>1</sup> (1493-1541) taught one principle, the guiding philosophy of surgical treatment, “by their nature the tissues contain an inborn balsam that heals wounds. So should every surgeon know that it is not he, but nature that heals wounds”? Similarly, Ambrose Pare’ (1510-1590)<sup>2</sup> wrote a great maxim “*Je le pansay; Dieu le gaurit*” – I dressed his wound; God cured him”. This was the foundation of modern maxim, “The science of Surgery is based primarily upon the ability of tissues to repair itself.”

This fundamental problem of wound healing received various titles such as separation, breakdown or rupture of abdominal wounds, post-operative evisceration, prolapse, burst abdomen etc.

**Normal Wound Healing:** Normal rate of wound healing is the one present in an otherwise physiologically normal patient. No substance is known which will increase the normal rate of wound healing. However, study of tissue culture suggests a possibility of such agent being present in Embryonic Extract<sup>3</sup>. Repair of any tissue is stimulated by an injury to the tissue cell. The products of the damaged cell effects the fibroblastic response from the surrounding tissue. Process of healing is divided into three phases.

**I or Lag phase:** The surfaces of incision are first glued together by a fibrin net-work formed due to the coagulation of blood.

**II or phase of Fibroplasias:** It begins from 3<sup>rd</sup> to 5<sup>th</sup> day after injury and continues up to about 10<sup>th</sup> to 14<sup>th</sup> day. Fibroblasts multiply rapidly and with newly formed blood capillaries fill the defect. Fibrin is absorbed and collagen is formed. Fibroblasts form pre-collagen which has little cohesive power. By 10<sup>th</sup> day, it is replaced by collagen which gives strength to the wound. This has a great practical significance.

**III phase of contraction or scar formation:** It may be as long as a year.

With this basis, the factors responsible for non-healing of a wound will now be studied.

**(A) General Causes:** 1. General condition of the patient – Regeneration power of the tissues are less in any disease causing hypo-proteinaemia and vitamin C deficiency. According to modern views anaemia as such is considered not to retard wound healing. Poor healing in such cases is due to associated protein & other deficiencies. In study of wound disruption Hartzell and his associates<sup>4</sup> found either protein or vitamin C deficiency or both.

2. Vitamin C deficiency – Importance of vit. C has been investigated by Hunt<sup>5</sup>. In tissue repair vit. C is essential for formation of collagen. Thus partial or complete deficiency of vit. C retards the tensile strength of a wound. Scar tissue is also abnormally formed. Irregular arrangement of the fibroblasts and marked decrease of intercellular substance is characteristic according to Nash<sup>6</sup>.

3. Hypoproteinaemia – It is an established cause of non-healing. It retards fibroblastic proliferation and maturation of pre-collagen, reduces the colloid osmotic tension of plasma and decreases antibody formation as these are globulins. First two causes delayed healing directly, while the third indirectly, as it favours infection. Infection retards healing. Lecalie and his associates<sup>7</sup> studied this problem in detail and noted that lowest tissue protein values were found in the fascia of the patients with disruption but having normal serum proteins. Thus non-healing is more directly related to the protein depletion of the tissues than hypo-proteinaemia. Naturally, serum protein estimation is not an adequate index of protein nutrition. In the study of protein depleted rats they<sup>8</sup> again found out that sulphhydryl (SH) radical plays an important role during the lag phase of wound healing. Without this, lag period is prolonged. Normally, this SH radical is supplied by Methionine and Cystine. These may be used for prevention.

4. Normal fluid & electrolyte balance is important. According to Hermanns Desfer<sup>9</sup> alkalosis inhibits and acidosis favours wound healing.

5. Age – Rate of healing is slow due to longer lag period in elder patients than in younger ones.

**(B) Local Causes:** 1. Infection – This is an adequately proved cause and is common. One rare type may be an occasional factor. P. Theren<sup>10</sup> states that the tendency to ‘breakdown’ of the



wound after operation on bowel may be due to Amoebic infection. This is because of the ability of *E. histolytica* to secrete a ferment which causes coagulation necrosis and tissue lysis.

- 2. Devitalization of tissues – Trauma from any cause and restriction of arterial blood supply will cause devitalization. This may be due to poor venous return, excessive suture tension, too tight bandages, pressure from big haematoma, etc.
- 3. Any foreign material and necrosed tissue in a wound. Inadequate drainage & continuous trauma.

With this fundamental knowledge the subject proper will now be considered.

**Disruption:** This may be partial or complete. All the layers of abdominal wound are separated in complete disruption, while either the skin or the peritoneum remains intact in partial disruption. Abdominal contents may protrude. Disruption may follow any abdominal operation.

**Incidence:** It varies between 0.2 to 4.0 per cent. The figures obtained by some of the workers are tabulated below:

Table 1:

Name	Total Number of abdominal operations	Percentage of Disruption
Hurtezell et al <sup>4</sup>	1,456	1.50
Tashire <sup>11</sup>	8,346	0.65
Wolff <sup>12</sup>	1,700	2.60
Tweedie & Long <sup>13</sup>	22,311	0.50

Study of 1,889 abdominal operations (excluding operations for inguinal hernia and for polysthan tube drainage of ascites), carried out over seven years in the Sassoon Hospitals, Poona, gave an incidence of 2.91 per cent. But the groups of patients from U.K. and USA belong to better class as far as nutrition and early medical aid care concerned. On the other hand, our group mostly includes under-nourished and debilitated patients. These results, obtained from different groups of the patients, cannot be compared as equality of groups in all relevant respects must be observed before attempting the interpretation of statistical results<sup>14</sup>.

**Death Rate:** It varies widely between 20 and 85 per cent<sup>12</sup>. In the present series death rate was 55.5 per cent. Cause of death is mostly the primary disease. But peritonitis, shock, lung complications, intestinal obstruction, debility were common.

**Etiology:** 1. Sex – It is often said that disruption occurs more frequently in males. But it is doubtful that sex plays any role. As seen from table 2, in our series, it occurred with almost equal frequency in males and females.

2. Age – It is frequent in patients over 45 years old.

Table 2.

Total Number of Abdominal Operations		No. of Disruptions		Percentage	
Males	Females	Males	Females	Males	Females
445	222	14	7	3.10	3.15



Maingot<sup>15</sup> noted it in an infant of 14 days after Rammstedt's operation to a woman of 89 after ecentralize my.

3. Fundamental causes of non-healing of wounds are already considered.

4. Type of anaesthesia – Disruption occurs with equal frequency after local, spinal and inhalation anaesthesia. However, badly administered inhalation anaesthesia accompanied by straining and struggling may be a contributory factor. Hamilton Bailey<sup>16</sup> states that tremendous expulsive contractions of the abdominal musculature occur while the patient comes round from an anaesthetic. He further adds that the most extravagant of these spasms occur after withdrawal of an endotracheal tube in a lightly anaesthetized patient and having heard sutures snapping asunder, he opened the wound to find his hypothesis correct.

5. Technique : “Handle the tissues with loving kindness and they will heal in the same manner”. This must be remembered well. Healing will be defective after rough handling, imperfect sterile technique, hasty/forcible and inaccurate suture of abdominal wall especially of the peritoneum, vigorous retraction causing trauma to abdominal wall, etc. Too tight suturing is the most common error. This leads to tissue necrosis. Disruption is less frequent after transverse incisions than vertical incisions. Of the vertical incisions, supra-umbilical incisions are more prone to be followed by this complication. But it has occurred even after gridiron incision. Drainage tube is also supposed to favour disruption.

6. Increased intra-abdominal tension in immediate post-operative period - This is possibly the most important factor. Vomiting, distension, coughing, hiccough, restlessness, ascites and straining during defaecation and micturition will add to the trouble. Wolff<sup>12</sup> reopened the wound after post-operative cough, etc., and found that even silk sutures in fascial layer were broken. It was also observed by Marsh<sup>17</sup> that in patients with intestinal obstruction the incidence of disruption was 5.8 per cent.

7. Acute pancreatitis or injury to the pancreas will cause auto-digestion of the wound by escaping ferments and healing is impossible. A,C.T.H. and cortisone impair wound healing after prolonged use<sup>13</sup>.

**Clinical Picture and Classification:** Clinically disruption may occur any time between 5 to 19 days after operation. Maingot<sup>15</sup> has classified these

cases clinically into three groups according to the time of disruption and other clinical observations. Sero-sanguinous discharge occurring on or about 7<sup>th</sup> day is almost pathog-nomonic. Clinical classification is inadequate as it is not useful from the etiological and also the treatment point of view. However, etiological classification is difficult as in any particular case multiple factors are responsible and there is no single factor responsible for disruption in all cases. It is proposed to group the cases in four broad groups.

- I group – Cases in which disruption has occurred mainly due to some of the general causes of non-healing.
- II group – Cases in which disruption is mainly due to one or more local causes or errors.
- III group – Cases where both the general and local factors are responsible for disruption.
- IV group – Cases in which disruption has occurred rather unexpectedly as no obvious cause could be attributed.

In the present series 18 cases are studied in details. Table 3 will show the number of cases in each of the four groups.

Table 3.

Etiological group	I	II	III	IV
No. of Cases	2	5	9	2

In Appendix clinical date of all the cases studied in detail are given. Following are the illustrative cases from each group.

**Group I:** Case number 10, D.S.B., male, 50 year old, was admitted for duodenal ulcer perforation. On exploratory laparotomy, perforation of malignant ulcer in the pyloric region of the stomach was detected. Patient took general anaesthetic quite well. Perforation was sutured and abdomen closed without drainage. Post-operative period was smooth except little distension on 3<sup>rd</sup> post-operative day, which was relieved after enema. As he showed hypo-proteinaemia, blood transfusions and intravenous proteins were given. Stitches were removed on 10<sup>th</sup> post-operative day and wound was apparently healed. Patient was discharged against medical advice. But he returned next day with disruption. Immediate resuturing was done. Supportive treatment of high doses of vitamin C, penicillin & streptomycin, and protein hydro-lysate



intravenously was given. Eleven days after resuturing the wound healed. But then he developed bed sore and died on 15<sup>th</sup> day after suturing.

**Group II:** Case number 6, R.I.K., 22 year old, was admitted for acute intestinal obstruction. Exploration was done through right para-median incision under general anaesthesia. Volvulus of the sigmoid colon due to mesenteric cyst was detected. Colon was gangrenous. Cyst was excised and sigmoid colon was resected with primary end to end anastomosis. Towards the end of the operation patient was pulse-less. Thus, the wound was hurriedly closed. However, she came round in the ward after blood transfusion, etc. Drainage tube was removed after 24 hours. Post-operative period was smooth. Stitches were removed on 8<sup>th</sup> day. Pink discharge was noted. The wound disrupted on the same day. It was treated conservatively by strapping and local penicillin and streptomycin, as it was infected. Resuturing was done on 20<sup>th</sup> day after operation. Nine days afterwards stitches were removed and the wound healed perfectly. The patient was examined two months later to find her in excellent health & strong scar.

**Group III:** Case number 4, M.C.D., female, 20 year old was explored under General Anaesthesia, through right para-median incision, for enteric perforation of the ileum. The perforation was sutured and abdomen closed with drainage. Patient took ether badly and in spite of atropine intravenously secretions were troublesome. General condition was low. Drainage tube was not removed as it was discharging large amount of pus. In spite of intravenous Tetracycline and other antibiotics, infection could not be controlled. She had persistent cough with signs of bilateral bronchitis. Stitches were removed on 8<sup>th</sup> day after operation. The wound was grossly suppurating. Wound layers gradually separated and on 11<sup>th</sup> day it was evident that wound was disrupted. Omentum and intestine were adherent to the skin margin. They were separated under G.A. and wound was closed with through and through sutures. The wound was strapped. But she died on 15<sup>th</sup> day in spite of potent antibiotics, blood transfusions, large doses of vitamin C, protein intravenously, etc.

**Group IV:** Case number 13, T.B.K., male, 30 year old, was operated for acute intestinal perforation, through right para-median incision, under general anaesthesia. After suturing the perforation, abdomen was closed in layers without drainage. His general condition was good and had very

smooth post-operative period. Stitches were removed on 7<sup>th</sup> day. The wound was satisfactorily healed. On the 15<sup>th</sup> post-operative day, however, when he was getting down from the cot rather hurriedly, he felt something unusual under abdominal support. Examination disclosed complete disruption of the wound. Immediate resuturing was done under general anaesthesia, with through and through sutures. Stitches were all removed on 7<sup>th</sup> day after resuturing, to find the wound healed. Patient was discharged in a good condition on 24<sup>th</sup> day after operation. Other usual treatment was also given.

**Treatment:** It is needless to say that prevention is better than cur. Consideration of etiology indicates how it is to be prevented. First-aid treatment consists of covering the wound with sterile towel, injection of Morphine to calm down the patient and Ryle's tube to prevent distension. Shock should be treated. Depending on the condition of the patient and the wound, three methods of treatment are advocated.

1. Packing the wound followed by strapping, e.g., inpatients with very low condition and grossly infected wound.
2. Temporary packing and strapping followed by secondary suture. Essentially, it is the same as above, but when the wound is healing, do secondary suturing.
3. Immediate suture – Usually this is possible. After cleaning the wound, through and through sutures, one inch apart and one inch to 1½ inch from the margin, are taken. It is advised to use thread or stainless steel wire and to remove the stitches on 14<sup>th</sup> to 18<sup>th</sup> day.

Any type of anaesthesia will do, but it must give good relaxation for sufficient length of time and it must be safe.

**Discussion:** Incidence of disruption in the present series is rather high, i.e., 2.91 per cent. But as already stated, the results obtained at different places in different groups of patients cannot be compared on statistical grounds. Effect of such difference is well shown by Marsh and his associates<sup>17</sup>. They studied 500 cases of abdominal operations from a general hospital and 500 similar cases from a private hospital. Incidence of wound disruption was 5.8% in the first group, while it was only 1.6% in the second group. They pointed out that through and through tension sutures were systematically used in private patients and that the patients admitted to the General Hospital were



more ill and their nutritional state did not compare favourably to the private patients. Apart from the factor of malnutrition some of the following factors may be responsible for the high incidence.

1. As it is obvious from table 4, about 61.01 % of cases with wound disruption were admitted for acute abdomen. Thus, preoperative correction of nutritional deficiencies was impossible.
2. Under-estimation of protein depletion, often due to a false sense of security, given by normal serum proteins.
3. The possibility of inaccurate closure of the abdominal wound by inexperienced assistants cannot be ignored.
4. High incidence of increased intra-abdominal tension in immediate post-operative period and routine practice of removing endotracheal tube when the patient comes out of anaesthesia.

It is observed that about 72.2 % of the cases exhibited symptoms of post-operative increased intra-abdominal tension. It appears that this may be the most important etiological factor as suggested by Tweedie and Long<sup>13</sup> who found out that 75 % of the patients in their series exhibited symptoms of cough, vomiting and distension. Dyke<sup>18</sup> actually determined experimentally, intraperitoneal pressure in human. He showed that the normal pressure in the supine position is about 8 cm of water. Significant rise in the pressure occurs during coughing, vomiting, defaecation and straining on commode (but not on bed pan), etc. He also proved that walking; rising from bed, etc., do not throw any significant stress on the abdominal wound. Thus, early post-operative ambulation, if properly carried out, is not at all harmful.

The patients admitted in any general hospital, as is ours, come mostly from poor class and are usually seriously ill. They are all under-nourished especially those with chronic infection, malignancy, etc. However, the patients with wound disruption did not show uniformly low serum proteins. The values varied from 5.08 to 10.52 gm %. This confirms the importance of clinical judgment of the state of nutrition and that total serum protein concentration is not the adequate index of the state of protein nutrition. Because of this, protein requirement was underestimated.

It is difficult to express an opinion as regards the technique, as comparative study was not possible. However, the importance of careful closure is well emphasized as in one case, hurried

and probably inaccurate closure was certainly responsible for wound disruption. In some of the cases, tension sutures were taken during the operation, but in spite of this precaution wound disrupted. In this respect, useful reference has been made recently. "Retention sutures are believed by many to be effective, but for them to be so, they must be placed as closely together as the sutures approximating the fascial layers. A few tension sutures widely spaced are of little value"<sup>19</sup>.

It is advised in the standard text-books that the stitches after secondary suturing should be removed on from 14<sup>th</sup> to 18<sup>th</sup> day. However, in the present series stitches were removed as early as on 7<sup>th</sup> day and wound healing was satisfactory. It was also observed in certain cases, that even if a patient died, his wound was already healed nicely after secondary suturing. Young and his associates<sup>20</sup> studied experimental wounds in rabbits and noticed that mean rate of healing of the secondary wounds was significantly faster than that of the primary wounds. They believed the formation of 'wound healing substance' in a primary wound, but were doubtful about its nature. However, Savlov and Dunphy<sup>21</sup> showed experimentally that there is no such substance which promotes healing and confirmed that that resutured wound heals more quickly and strongly than a primary wound. Increased tensile strength is due to proliferation of fibroblasts which has already occurred in a primary wound. Rapid healing is due to the absence of the lag period of 3-5 days in the secondary wound.

Table 3 shows that there are only two cases in group one while there are 5 and 9 cases in II and III groups respectively. This is possibly because the local factors in disruption of abdominal wounds are more important than the general factors. This conclusion is well supported by another observation that no wound disrupted after repair of inguinal hernia, but the wounds after polysthan tube drainage of Ascites in thigh muscles never healed primarily (other factors may be contributing). However, number of cases is very small and this observation must be confirmed in larger number of cases.

Case 5 is of spontaneous rupture of incisional hernia. It is intentionally included to emphasize the late effect of defective healing. I have seen a second case of similar type at S.S.G. Hospital, Baroda, where rupture of an incisional hernia occurred after a strong dose of purgative. It is a surgical emergency and in view of the



treatment it is a type of wound disruption rather than a complication as in ventral hernia.

Histological examination of the wound edge may give information about the extent of healing but very small number of biopsies taken does not permit any comment.

As regards prognosis, it is possible to conclude from table 5 that it is better in groups II and IV, and it is bad in groups I and III. But the number of cases is too small to draw such conclusion.

Table 5:

Group	I	II	III	IV
No. of cases	2	5	9	2
No of deaths	1	1	8	nil
Mortality %	50	20	89	nil

Difference: II & III and III & IV significant, rest are not so.

Summary and Conclusion:

1. Fifty-five cases of wound disruption occurring in 1889 major abdominal operations carried out over 7 years are reviewed.

References:

1. Paracelsus (1493-1541) Physician from Switzerland. Principles and practice of surgery by Berman, 1950:4.  
2. Ambrose Pare' (1510-1590) Short history of Medicine, Singer, 1944:94.  
3. O. Bucher, Ciba Monographs, No.2:41, 116:669, 1941.  
5. Hunt, B.J. Surgery, 28:436, 1941.  
6. Nash, Nash's Surgical Physiology, 1953:140.  
7. Localio, S.A., Chassin, J.L., and Hinten, J.W., Surg., Gynec. And Obst., 86:107, 1948.  
8. Localio, S.A., Morgon, M.E., and Hinton, J.W., Surg., Gynec. And Obst., 86:582, 1948.  
9. Herrmannsdofzer, A., Deutsche Ztschr.f.Chir., 200:534, 1927 (quoted from the text-book of surgery, Christopher, Ed. 5, 1950).  
10. P. Theron, B.M.J., 2:123, 1947.  
11. Tashire, Surg., Gynec. And Obst., 78:487, 1944.  
12. Welff, W.I., Annals of Surgery, 131:534, 1950.  
13. Tweedie, F.J., and Long, R.C., Surg., Gynec. And Obst.,99:41, 1954.  
14. Hill, A.B., Principles of Medical Statistics, Ed. V:4, 1953.  
15. Maingot, R., Abdominal Operations, Ed. II:42.  
16. Hamilton Bailey, Emergency Surgery, 1953: 85.  
17. Marsh, R.L., and Associates, J.A.M.A., 155:1197, 1954.  
18. Dyke, J.C., Surg., Gynec. And Obst., 87:472, 1948.  
19. Editorial, B.M.J., 2:1539, 1954.  
20. Young, J.S., and Associates, J. Path., and Bact., 52:233, 1941.  
21. Savlev and Dunphy, New Engl. J. Med., 250:1062, 1954.

- 2. Analysis of 18 cases of wound disruption studied in details is presented (occurring in about two year period).
- 3. Attempt is made to study and review the problem of healing.
- 4. Some important etiological factors are discussed.
- 5. Cases of wound disruption are classified etiologically.

In spite of the tremendous advance in surgical technique and anaesthesia, better pre- and post-operative management and better control of infection by the modern antibiotics, there is no appropriate improvement in the incidence and mortality of this tragic complication. This is indicative of our still imperfect understanding of the numerous factors influencing optimum wound healing. Further studies are essential.

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Appendix:

Case No.	1	2	3	4
Diagnosis	Bile peritonitis, Cholecystitis	Liver Cirrhosis	Intestinal Perforation	Enteric Perforation
Sex	Male	Male	Female	Female
Age	60 yr	50 yr	18 yr	20 yr
Type of Anaesthesia	General	General	General	General
Incision	Rt. Paramedian	Rt. Paramedian	Rt. Paramedian	Rt. Paramedian
Operation performed	Cholecystectomy	Hepatic artery Ligation	Exploratory Laparotomy	Suturing
Drainage tube kept	+	—	+	+
Serum Proteins gm %	7.45	8.65	5.8	N.A.
General Debility	+	—	+	+
Mechanical Factors				
Cough	+	—	+	+
Distension	—	+	—	—
Other	—	Ascites, Hiccough	Restlessness	—
Infection	—	—	+	+
Additional Information	Skin excoriated, Injury to pancreas during exploration	Pink discharge from the wound after 6 <sup>th</sup> day	H/O Delivery 15 days back, Developed Bed Sore	Infection could not be controlled even with Tetramycin
Etiological Group	III	II	III	III
Result	Died	Died	Died	Died

Appendix:

..... continued

Case No.	5	6	7	8
Diagnosis	Burst Ventral Hernia	Sigmoid Colon Volvulus & cyst	Liver Cirrhosis	Duodenal Ulcer, Gall stones
Sex	Female	Female	Male	Male
Age	35 yr	22 yr	45 yr	60 yr
Type of Anaesthesia	General	General	General	General
Incision	—	Rt. Paramedian	Rt. Paramedian	Rt. Paramedian
Operation performed	Repair	Primary resection, Anaestomosis, Excision of cyst	Coeliac axis Ligation	Gastrojeju- nostomy, Cho-tectomy
Drainage tube kept	—	+	—	+
Serum Proteins gm %	6.4	7.8	5.8	7.12
General Debility	+	—	+	+
Mechanical Factors				
Cough	—	—	—	—
Distension	—	—	—	—
Other	H/o having lifted Heavy weight	—	Ascites	—
Infection	—	+	—	—
Additional Information	H/o having undergone 11 operations, thin scar lower abdomen	Hurried closure of abdomen, Pink discharge	Patient mentally deranged and not cooperative	General condition was good throughout
Etiological Group	IV	II	III	I
Result	Cured	Cured	Died	Cured



Appendix:

..... continued

Case No.	9	10	11
Diagnosis	Incisional Hernia	Perforated malignant Ulcer, stomach	Enteric Perforation
Sex	Male	Male	Male
Age	65 yr	50 yr	35 yr
Type of Anaesthesia	General	General	General
Incision	Eleptical	Rt. Paramedian	Rt. Paramedian
Operation performed	Mayo's operation	Suturing	Suturing
Drainage tube kept	—	—	—
Serum Proteins gm %	6.8	6.24	6.2
General Debility	+	+	+
Mechanical Factors			
Cough	—	—	—
Distension	—	+	+
Other	Vomiting	—	Distension
Infection	—	+	+
Additional Information	H/o Appendisectomy, Profuse vomiting	Developed Bed-sore few days before death	Intestinal obstruction 2 days before death
Etiological Group	III	I	III
Result	Died	Died	Died

Appendix:

..... continued

Case No.	12	13	14	15
Diagnosis	Acute obstructive Cholecystitis	Perforation Ileum	Cephalopelvic Disproportion	Carcinoma Stomach
Sex	Male	Male	Female	Male
Age	40 yr	30 yr	20 yr	55 Yr
Type of Anaesthesia	General	General	General	General
Incision	Rt. Paramedian	Rt. Paramedian	Rt. Paramedian	Rt. Paramedian
Operation performed	Cholecystectomy	Suturing	Caeserian Section	Laparotomy
Drainage tube kept	+	—	—	—
Serum Proteins gm %	7.2	6.9	7.8	8.0
General Debility	+	—	—	+
Mechanical Factors				
Cough	+	—	—	—
Distension	—	—	+	+
Other	—	—	—	Eractations and Ascites
Infection	+	+	—	—
Additional Information	General Condition was very low	General Condition was good throughout	Pink Discharge, H/o two previous Caeserian Sections	Secondaries in the Liver detected
Etiological Group	III	IV	II	III
Result	Died	Cured	Cured	Discharged

Appendix:

..... continued

Case No.	16	17	18
Diagnosis	Chronic Cholecystitis	Duodenal Ulcer	Intestinal Perforation
Sex	Male	Male	Female
Age	22 yr	28 yr	5 yr
Type of Anaesthesia	General	General	General
Incision	Rt. Paramedian	Rt. Paramedian	Rt. Paramedian
Operation performed	Cholecystectomy	Partial Gastectomy, Appendectomy	Suturing
Drainage tube kept	+	-	+
Serum Proteins gm %	8.22	10.52	7.28
General Debility	-	-	+
Mechanical Factors			
Cough	-	+	-
Distension	-	+	+
Other	-	-	-
Infection	+	-	+
Additional Information	Conservative treatment due to partial Disruption	Dehydration, Bed-sores 2 days after Disruption	Dead roundworms present in peritoneal cavity. Patient was in profound shock for 36 hr. after operation. General peritonitis.
Etiological Group	II	II	III
Result	Cured	Cured	Died

Dissertation submitted for M.S. (General Surgery) Examination, University of Poona.



### 3. INSIGHTS IN PREVENTION AND IMPLICATIONS IN PRACTICE OF PREVENTIVE MDICINE & PUBLIC HEALTH

#### Introduction:

Prevention is much talked about in all spheres of life. However, it is poorly practised. This is true of every aspect of human way of life. Whereas prevention is an anticipatory measure, man generally reacts or responds *post-facto* to an event or situation he/she comes across. Things are washed when they get dirty. Clothes are never stitched in time so as to save seven. Machines and equipment are used till they fail to function. Preventive maintenance is hardly ever practiced except perhaps in the case of aircraft. Well proven safety measures such as use of helmets are even opposed by the activists. Hazardous habits such as abuse of tobacco, alcohol and narcotic drugs are rampant in all communities world over. Most accidents are preventable. However, accident is already a major cause of death. Importance of health is realized only when it is lost. Awareness comes when it is rather late, e.g., old age, obesity, etc.

Large scale non-compliance and even non-acceptance of measures and practices recommended and prescribed in disciplines of public health and preventive medicine should be viewed with this backdrop and social settings. Democratic principles value and talk of human rights, but ingrained responsibility and collective welfare are overlooked. It is argued that 'the developed countries of Europe and America, although enlightened democracies, have implemented public health measures in which individual human rights have been overruled completely for the benefit of

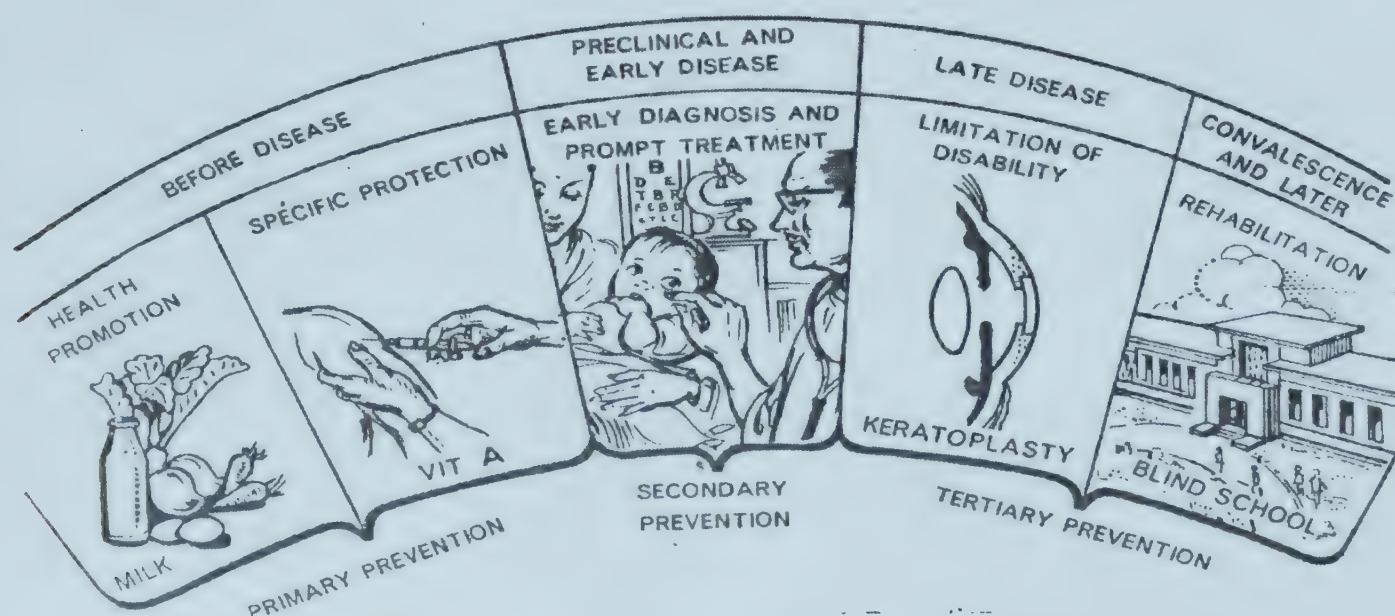
the health of the population as a whole'.<sup>1</sup> On the abuse of tobacco, Mackenbach<sup>1</sup> concludes that 'the rightness or wrongness of actions is not only, and perhaps not even primarily, dependent on their consequences'. Right and wrong things are not absolute, but are circumstantial. There are ethical and other social aspects also. American Public Health Association, in its Code of Ethics, states that 'public health should achieve community health in a way that respects the rights of individuals in the community'. 'Public health policies, programmes, and principles should be developed and evaluated through processes that ensure an opportunity for input from community members'.<sup>2</sup>

In view of the foregoing, it is proposed to examine critically current practice of prevention in clinical medicine and public health.

#### Five Levels of Prevention:

The wide scope for preventive measures has been brought out explicitly by Leavell & Clark through their five levels of prevention. These are: (1) health promotion, (2) specific protection, (3) early diagnosis and prompt treatment, (4) Limitation of disability, and (5) rehabilitation. Figure I illustrate these levels. The first two constitute primary prevention. The third is an example of secondary prevention. The fourth and fifth levels form tertiary prevention. Primary prevention is essentially a domain of public health practice. Secondary and tertiary preventions are largely the functions of integrated medical care.

Figure I: Illustrations of the Five Levels of Prevention<sup>3</sup>





It is often said that prevention is cheaper than cure. Perhaps this may be true in the case of medical practice and personal care, e.g., early diagnosis and prompt treatment of pulmonary tuberculosis or immunization of infants against childhood diseases such as diphtheria, whooping cough, measles, etc. Whereas cost of immunization of a single child may be low, the expenditures on immunization programme for a community will be quite high than the cost of treating cases of the relevant infections. In immunization programme vulnerable child population has to be covered entirely and for all times to come. With the success of immunization programme, comparatively the cost of treatment will be negligible than that the high expenditures on maintaining immunization status. It is mainly because of the economic consideration the rich developed countries opted and financed global eradication of smallpox. The benefit to the third world countries of eradication was a bye product. In addition to preventing mortality, morbidity and disablement due to several common communicable infections, immunization results in many social benefits.

### **Public Health:**

For promotion of health status and the control and prevention of disease, primary preventive measures are most efficient tools. Health promotion measures such as environmental sanitation and hygiene, education, proper and adequate nutrition, healthy life style, and behaviour and mind-set congenial to health will prevent almost all ailments. These primary measures are costly and demanding because of need for totality and continuity of coverage. Most of the primary preventive measures are difficult adopt and institutionalized. Major constraints are adverse community and personal behaviour which result in non-compliance and even non-acceptance of recommended measures. The task to bring about required change in behavioural is very difficult and often impossible. Soon after independence, development of public health system started well in India on a reasonably sound footing. Most of the epidemic diseases such as malaria, plague and cholera were brought under control. In dealing with the problem of rapid growth of population, the very key, integrated approach, of management of health services was ignored. In the first place, population growth being a demographic issue should have been dealt by the Social Welfare Department. The subject was given to Public Health Department. This item should have been integrated as a part and parcel of classical Maternal

and Child Health (MCH) component of public health services. But a separate Department of Family Planning was established and the Ministry was of Health and Family Planning with separate Secretaries. Family planning programme was taken with obsession. As a result the developing public health system was gradually consumed and became moribund. Classical MCH services, very core of small family norm was wiped out. ANM's sole work was to bring 'cases' for tubectomy. Despite all this the population growth continued. As a remedial measure MCH which was further diluted with stress on immunization, was integrated with Family Welfare. As expected this move also failed. Recommendation of the International Conference at Cairo was found handy. Thus was born the Reproductive and Child Health (RCH) programme. Sadly, just change in names does not make the grade. Belated though, now the separate Department of Family Welfare has been abolished and integrated into the Department of Health. Nevertheless, the basic troubles continue.

The poor and developing countries have high disease burden. Their financial resources and infrastructural facilities are limited. As a result, curative medical care which people demand gets priority and public health receive low priority. At best, public health services attempt to control and contain epidemics. Basic public health measures to promote health are either ignored or given low priority and allocation of funds. What suffers badly in the process is training of public health specialists, epidemiologists, public health engineers and other man-power.

Whenever medical services get preference, prestige of the clinical specialists get enhanced. Their opinions influence and shape 'health' policy. As a natural consequence, for the control and prevention secondary preventive measures are chosen over primary prevention. It is neither realized nor recognized that secondary preventive measures such as early diagnosis and prompt treatment may reduce prevalence of diseases but will not lower incidence rate, i.e., new cases will continue to occur at same rate. This is one of the reasons of failure of the national programmes such as for control of tuberculosis.

Epidemiology in public health practice plays the same role as the diagnosis of patient in practice of medicine. Epidemiology serves as a tool for community diagnosis. By establishing cause-effect relationship, classical epidemiology helps to find out the factors that determine public



health problems, design appropriate interventions, and test them for feasibility and efficacy. With declining importance of public health, traditional epidemiology is also waning. Instead of determining cause-effect relationship, modern epidemiologists have become statisticians and report so-called 'risk factors'. Knowledge of 'risk factors' in the non-communicable diseases might have made some persons conscious, but has made no impact on the occurrence of the diseases of affluence, viz. diabetes, hypertension, cardiovascular ailments, cancer, etc.

Lack of epidemiological approach is also evident in the recent Report of the National Commission on Microeconomics and Health.<sup>4</sup> It states that the promotion of health is of fundamental value in and of itself. It systematically identifies and analyzes the problems and constrains. It includes some indispensable solutions. However, in its section V on conclusions and recommendations, public health and promotion are missing glaringly.

National Rural Health Mission<sup>5</sup>, 2005-2012, is the latest rhetoric. Philosophy and concept are basically similar to those of provision of Health For All through primary health care approach. The bottle and the label are new. It seems that no lesson has been learnt from the failure of Health For All by the year 2000. Nevertheless, intension is good. The scheme has been scrutinized by many and some concerns expressed.<sup>6</sup> Approach is more cautious. It rightly envisages integration of several health programmes. The Mission will specially focus on 18 Northern States which are lagging behind and relatively less developed or are otherwise problematic. Still the unresolved questions are of accountability, management, authentic decentralized governance, empowerment of people. Will this Mission place people's health in people's hands? This positive move may strengthen public health system only if Panchayati Raj Institutions are given necessary authority and resources, and are freed from the clutches of bureaucrats.

**Globalization:** Historically, the concept of Health For All dates back to the Vedic period. It is aptly expressed in an ancient Sanskrit verse: *Sarve santu niramayaha*. Colloquially it means "Let all be healthy". *Ayurveda* emphasizes health promotion by prescribing daily activities of life, *dina charya*<sup>7</sup>.

Following the Alma-Ata Declaration of September 1978, India's national health policy 1982, was aimed at attaining an acceptable level of health for all the people by the year 2000. But that did not happen in India as in other developing countries. In both the rich and poor countries, there was "profound lack of understanding of the basic philosophy of the Alma Ata Declaration of entrusting people's health in people's hands".<sup>8</sup> With worldwide failure, there was summersault from primary public health measures. International agencies started advocating and supporting 'vertical' programmes incorporating multi-drug therapies, risk factors and secondary preventive measures. Despite massive expenditures performance is not satisfactory.

International organizations, in the name of assistance, have thrust experiences of the developed countries of the West on the health problems of the developing and poor countries of the East. Since such experiences are often not relevant to public health problems and issues in these countries, internationally advocated programmes are neither appropriate nor effective nor cost-effective. Further, national priorities get distorted because of the agenda of the donor agencies. There are several examples, viz. Revised Tuberculosis Control Programme, DOT; Pulse Polio Programme; AIDS and HIV Control Programme. The basic issues are poverty, want of equity, social injustice, ignorance, etc. These require primary preventive and promotional measures. In brief, the current 'International Initiatives' are very anti-thesis of classical public health practices.

The best illustration of distorted priorities as a result of the agenda of funding agencies is best provided by HIV/AIDS. Prioritization in public health should be based on the extent of mortality and morbidity of the disease, economic and social loss, and availability of cost-effective and feasible preventive and control measures. What is surprising is the high priority accorded to HIV/AIDS when these criteria are not satisfied. If the fundamental malady is poverty with 15 to 20 million poor people, this gets highest priority. Worse is that, this is being done when tuberculosis, diarrhoea and acute respiratory infections in under five children, rabies, etc., are neglected when they cause much more morbidity and mortality, economic loss, and against which control measures are simple, well known and effective. See Table 1.<sup>9</sup>



**Table 1:** *Comparative Disease Burden in India*

Disease	Number of Deaths per year
Cardiovascular diseases	2.82 million
Respiratory infections	0.99 million
Diarrhoeal diseases	0.71 million
AIDS (1996-2001)	2,524

HIV/AIDS	Tuberculosis
<div>1. HIV positive 3.86 million in 2000.</div> <div>2. Reported cases of AIDS: 7,012 in 15 years.</div> <div>3. Reported deaths due to AIDS in 15 years. 14,000 reported (estimated 2.5 million)</div> <div>4. No curative treatment available. Treatment is costly for most patients.</div> <div>5. Except controlling promiscuity, no other Control measure is effective.</div>	<div>1. Tuberculin positive rate: 85% among persons &gt; 25 years.</div> <div>2. Cases of tuberculosis: 15 million</div> <div>3. Number of deaths: 0.5 to 0.7 million every year.</div> <div>4. Curative treatment is effective &amp; cheap. Duration is limited to about a year.</div> <div>5. Available control measures are effective.</div>

**Preventive Medicine:**

By definition public health discipline incorporates medicine, including preventive medicine. Here deliberations are confined to practice of prevention in medical practice. It is now recognized worldwide that clinical medicine should incorporate prevention also. It is seen at its best in immunization, growth monitoring, etc., becoming integral part of paediatric practice; and antenatal and post-natal care being taken as priority by the obstetricians. However, in reality, prevention has been practiced by the surgeons since ancient days starting with Baron Joseph Lister, father of antiseptic surgery. Without advent of asepsis and sophistication of aseptic techniques, sort of a primary preventive measure, modern super-surgery would have not been possible.

Departments of Preventive and Social Medicine / Community Medicine, etc., were created with an objective of incorporating disease prevention and health promotion into the practice of clinical medicine. The Bhore Committee<sup>10</sup> was first to indicate that India needs a ‘Social Physician’. The departments were required to train the future general practitioners in the skills of communication and educating people on health and related matters. For one or other reason this has not happened. As mentioned earlier, the only exceptions are the disciplines of paediatrics and obstetrics. Early diagnosis and prompt treatment are the part and parcel of clinical medicine. This is not in evidence.

Pulmonary tuberculosis is not diagnosed early despite the fact that persons with early symptoms do go to doctor for treatment within a few weeks of onset. It is observed that on average it takes six months before tuberculosis is suspected and diagnosed. Leprosy can be easily suspected and diagnosed if doctor examines a person without clothes and looks for non-itching patch on the skin, at least once a year. However, it takes couple of years before diagnosis of leprosy is made. Diphtheria can be easily diagnosed if mouth of every child with even mild fever, is examined routinely.

Non-communicable diseases such as diabetes, high blood pressure, glaucoma, cancer, etc., are characteristically asymptomatic for even years. Health education and periodic health check-up early diagnosis is possible. Thus, tertiary prevention is possible for avoiding complications. Such attempts are on the increase, but still uncommon in general practice of medicine. Symptom-less case of diabetes, high blood pressure, glaucoma and conditions such as obesity are now-a-days advocated to take treatment. This practice will certainly help to prevent much of morbidity, disablement and mortality. However, such secondary preventive measures will have no effect on the incidence of these conditions. In order to lower incidence rate, primary preventive measures are needed. Fortunately, many of these measures are common to several of the non-communicable diseases. Many specialists do



recommend exercise, rationalization of diet, giving up smoking and drinking alcohol, taking holidays, and so on. However, only in the Scandinavian countries there are organized integrated programmes to prevent over-weight, rationalize selection of foods and eating habits, promote exercise, prevent use of tobacco, etc.

Specific protective measures are however getting roots in clinical practice. Tetanus toxoid is invariably administered in cases of accidental wound. Vitamins are prescribed routinely, though irrationally. Antibiotics are being used to prevent pneumonia in children. Surprisingly, in surgical practice, some surgeons and hospitals are neither adequately strict nor particular. Well established disinfection and aseptic techniques are not scrupulously followed or even ignored. Because of this secondary and cross infections are commonly encountered.

### **Communication and Counselling:**

In most of instances, prevention is an active process on the part of the beneficiary. Naturally, prerequisite is having appropriate knowledge and willingness for action. It is in this regard health education becomes integral part of public health services. In early days efforts of to education were half-hearted, Health Educator was to do the job and education remained confined to different disease control and family welfare programmes. Impact was not apparent because of failure to communicate effectively. Then approach was changed to IEC (Information, Education and Communication) during the last decade. The beaten path was followed without assessing the impact. There was neither talk of collaboration nor any dialogue with Education Ministry. Attempts such as holding village meetings were made to introduce two-way interpersonal communication. Yet the outcome was not satisfactory. Involvement and participation of the people was not materialized for all practical purposes.

“It is universal experience that information, knowledge per se does not necessarily result in appropriate or expected change in human behaviour. There are several personal, cultural and traditional, situational and circumstantial, and other factors influencing behaviour. Further, behaviour may take different and very diverse forms and may change over time and situation. With this realization, IEC strategy has been changed to CBC (Communication for Behavioural change).

However, our knowledge of behaviour is very incomplete. How do the rumors spread so effectively and people act on the information? The rumors such as God Ganpati's idol drinking milk or of Hanuman sweating got widely spread not only all over India but also far of in U.S.A. Negative health habits such as use of tobacco and alcoholic drinks are highly contagious, but it is hard to inculcate positive health behaviours such as exercise, regularity and moderation, lifestyle changes, or giving up smoking. How these adversities get communicated so well, easily and rapidly? Why we are not researching? “Tonics” are very popular although none of them have scientific justification. Nevertheless even the qualified doctors and consultants prescribe them. Many doctors do smoke despite the knowledge of the harm; they also consume antibiotics when they themselves get common cold. Failures of communication are plenty. Can we learn more about why and how of the failures?”<sup>11</sup>

It is in this respect, counselling service by an appropriately trained person will be useful in promoting preventive and promotion actions by the people.

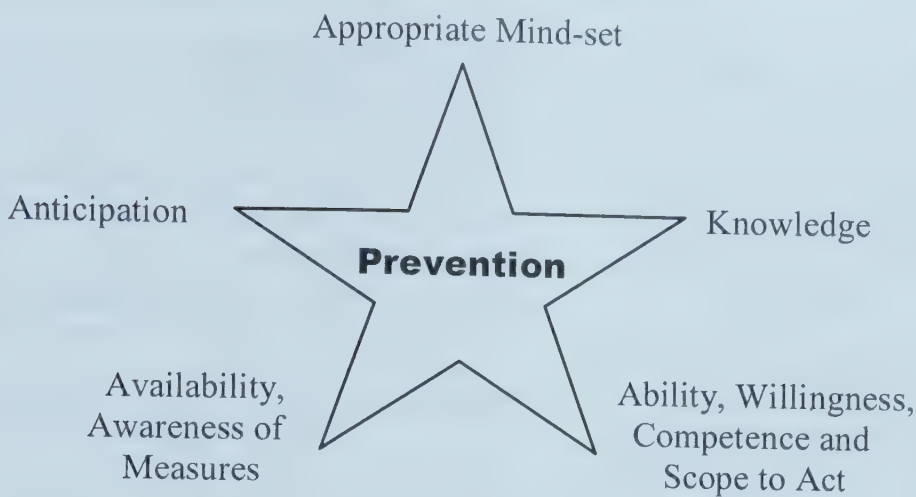
### **How to go about?**

Prevention implies taking advance measures against something possible or probable. Five pillars on which prevention rests are: (a) Appropriate Mind-set, i.e., forethought to avoid risky or hazardous event, or unwelcome or disagreeable outcome, and faith (b) Anticipation, i.e., a prior action that takes into account or forestalls a later happening, or visualization of a future event or state, (c) Knowledge, i.e., thorough understanding of current or proposed activity or event and possible unwanted outcomes, etc., (d) Availability and awareness of the measures or tools to stop anticipated risks or hazardous event, or unwelcome or disagreeable outcome, and (e) Ability, willingness, competence and scope to apply and effectively use all the possible preventive measures or actions well in time and efficiently. See figure II.

Faith, culture, belief and traditions influence one's mindset. All these are good instances of strong and lasting behaviour. Very often these are handed down from one generation to another especially orally by usage. These will ultimately institutionalized prevention practices in the society.



**Figure II:** *Five Pillars of Prevention*



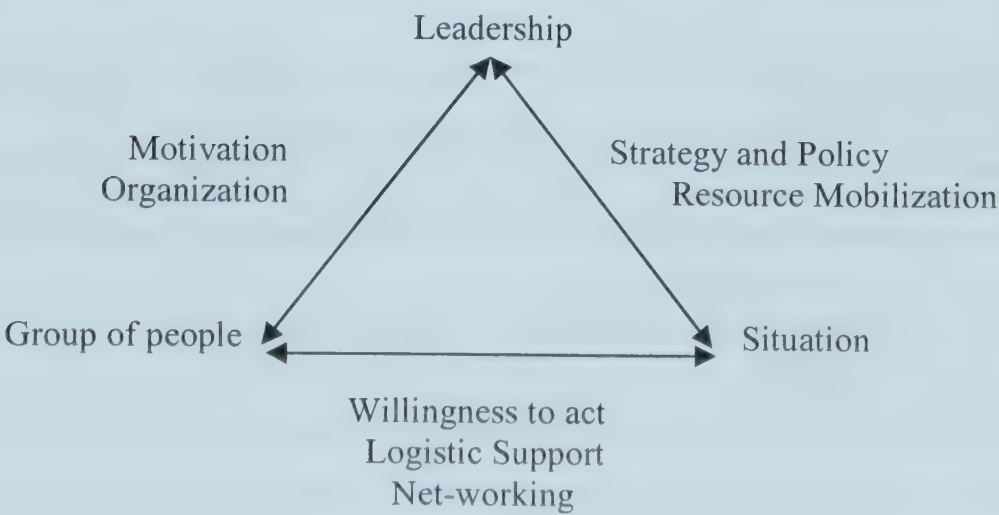
It is noteworthy that the damage done by blind faith in science and technology, without unequivocal evidence, is plenty. The example of the wide spread (mis)use of tonics, hormones and antibiotics. The most damaging is the recent advocacy of the use of condom as a ‘public health measure’ for the prevention and control of new venereal disease AIDS and HIV infection. Worse is that this is being done with total disregard to sex behavior vis-à-vis the well established cultural, ethical and traditional social values.

In any society, common man tends to fall in line with majority. Therefore, if preventive measure such an immunization or antenatal care is routinely followed by the majority, others are likely to fall in line. As in case of herd immunity, critical levels of practice followers, to be attained for various preventions are worth to be researched on.

Materialism has made life artificial. Ecological disturbance and imbalance is causing mental stress and psychological problems. Consequently, traditional spirituality is coming in vogue. Green movement is taking roots in countries such as Germany, France, Italy, UK and USA. The aim is on voluntary simplicity and ‘downsizing’ of lifestyles. Lesson is to hold on to our simplicity. Science and technology, and spirituality are not contradictory.

Prevention at personal level is invaluable. However, for purposes of public health it has to be priority and routine community activity. To this objective and effect, there is urgent need to have insight into social action. The elements of social action are shown in Figure III. The process of social action consists of three phases, viz. Preparation, Intervention and Sustenance.

**Figure III:** *Elements of Social Action*





The major factors on which social action depends include the following:

1. Nature and magnitude of situation or issue or the problem, place and time.
2. Characteristics of the people, culture, socio-economic conditions, and other attributes.
3. Leadership types, qualities and effectiveness.
4. Motivation, commitment, training and organization.
5. Strategy, policy, resource mobilization and management.
6. Willingness to act, logistic supports, team-work, etc.
7. Political system and situation.

Leadership plays an important role. Leadership may be inborn or acquired. Leader may be active or latent. Leadership will get activated depending on several motivating factors such as nature and magnitude of situation/issue/problem, place and time of the event, characteristics of the people involved, etc. The three phases of social action are elaborated below:

*Preparatory Phase* – It includes recognition and definition of problem or issue or a situation that need t be tackled. Situational analysis is important in this regard. This should lead to motivation and decision to react. Policy and strategies are to be formulated. Objectives are to be set and expected outcome has to be agreed upon. Accordingly people are to be organized and trained, and resources are mobilized. Information, communication and training are the cardinal factors for mobilization and motivation of the people. Plan for action has to be prepared.

*Intervention Phase* – Actions are initiated as prearranged. It may be a big assault with a bang, or gathers momentum and impetus till a critical mass develops. Streamlining and mid-term assessment and corrections may be necessary. Depending on objectives, the actions continue till sufficient strength is acquired. Mass movement may be desired. Continuous review and monitoring are necessary. Success depends upon effective leadership and community organization.

*Sustenance Phase* – Impact evaluation is important. Corrections and modifications are to be accomplished. The objectives may change and new plans may be necessary. Long term human resource development, further development and mobilization of resources, logistics and linkages with other social systems or communities may be required. Social action may become a part of life, a tradition or a cultural characteristic. Most critical input in this regard is availability of people to take initiative, organize people and ensure continued individual and social actions in favour of prevention and human welfare.

The process of social change may not, however, follow the above sequence, and the importance or priority that any of the constituents may vary from people to people, situations and time to time. It is also important to note the relationship between the extent and scope of social action vis-à-vis its impact and sustenance. If social action is restricted to a single behaviour, e.g., immunization, impact will be restricted. But if the social action is directed to multiple or groups of behavior, e.g., lifestyle factors, the effect is likely to be pronounced and lasting.

## References:

1. Mackenbach, Johan P, Odol, Autobahne and a non-smoking Fuhrer: Reflections on the innocence of public health, *International Journal of Epidemiology*, **34**: 537-539, 2005.
2. American Pub. Health Asso., Public Health Code of Ethics: <http://www.apha.org/codeofethics/etics.htm>
3. Five Levels of Prevention, Basic Preventive and Social Medicine, Ed. Deodhar, N.S., and Adranvala, J.K., G.Y. Rane Prakashan, Pune, 1971, pp 6.
4. Government of India, Ministry of Health and Family Welfare, Report of the National Commission on Microeconomics and Health, August, 2005, New Delhi.
5. Government of India, Ministry of Health and Family Welfare, Mission Document, National Rural Health Mission, April 2005.
6. Shukla, Abhay, National Rural Health Mission – Hope or Disappointment?, *Quarterly Journal of the Indian Public Health Association*, **49-3**:127-132, July-September 2005.
7. Rao, M.N., K.K. Radhalaxmi. History of Public Health in India, Calcutta: Navana Printing Works, Pvt. Ltd., 1960, pp 64-88.
8. Banerji D., Politics of Rural Health in India, *Quarterly Journal of the Indian Public Health Association*, **49-3**:112-122, July-September 2005.
9. Deodhar, N.S., Health for Million, **28**(6) and April-May, **29**(1), 2003, pp 21-25, Voluntary Health Association of India, New Delhi. (Modified version of paper “Community, Commonsense and HIV/AIDS” presented at Round Table on ‘Reflection on responses to HIV/ AIDS – Perspectives from South Asia’, February-March.)
10. Government of India, Health Survey and Development (Bhore) Committee, Report, Delhi, Publication Division, 1946.
11. Deodhar, N.S., Changing Strategies and Challenges in Communication in Health, Chapter 2.3, *Contemporary Public Health*, Ed. Gupta, J.P., and Sood, A.K., Apothecaries Foundation, New Delhi, May 2005.

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## 4. Role of Hospitals in Public Health System

The modern hospitals for personal medical care came into existence from the beginning of the 20<sup>th</sup> Century. Since then their set-up is continuously changing so as to accommodate rapid advances in science and technology. Philanthropic consideration has virtually gone. During the last two decades, with the growing concept of graded services for the primary health care, a new public health and socio-cultural dimension has been added to the roles which our hospitals are required to play.

The primary considerations in hospital management are: (a) Appropriateness, quality and efficacy of treatment vis-à-vis diagnosis of the ailment, (b) Satisfaction of the patient and close relatives regarding the services and conduct, and (c) Cost-effectiveness and ethics. In one set of the hospitals such as those managed by the Government and some Voluntary Organizations, provision of medical care to the patient gets priority over financial consideration; while for majority of the hospitals in the private sector, fiscal profits is the main concern. Secondary health care hospitals provide services by the basic medical and surgical specialists. On the other hand, tertiary health care hospitals offer sophisticated diagnostic and treatment facilities by the super-specialists. With emergence of the corporate sector which is now establishing super-speciality five-star hospitals, hospital service has become a matter of business. As a globalization effect, now 'medical tourism' has started surfacing in the metropolitan cities. With these differences in the backdrop and hospital settings, there will be considerable variation and differences in the management of diverse types of the hospitals.

I do not propose to talk on the conventional personal medical services the hospitals are required to provide to the patients. Instead, I want to focus on ten services which are often overlooked or even neglected in day-to-day hospital practice.

**1. Referral Services:** These are supportive to the primary medical and health care provided either by the private medical practitioners or the public sector institutions such as the Primary Health Centres. The services include investigations and diagnosis, special treatment and/or surgery, and counselling and advice which may be provided in the traditional manner or with the use of modern multi-media two-way communication. The first level referral service

is provided by the basic consultants such as physicians, surgeons, etc., and the second level is served by the super-specialists. To be effective, this referral service should be two-way, i.e., the hospital has to report back to the originator for follow-up actions, etc.

**2. Disease Control:** Excluding preventive medical care, this includes (a) notification of all diseases and conditions as required by the local and State authorities. (b) Referral to the local infectious disease hospital as and when indicated. (c) Concurrent and terminal disinfection as may be required. (d) Appropriate measures to ensure spread of infection to the attending staff and other contacts, etc.

**3. Community Requirements:** Briefly this includes: (a) Registration of births, deaths, stillbirths and abortions. (b) Certification of the cause of death in the international standard form. (c) Medico-legal work, including post-mortem examination. (d) Cold storage for dead bodies. (e) Provision for transport of the dead patients.

**4. Preventive Medical Care:** This should cover all the five-levels of prevention, e.g., (i) Health Promotion: Counselling Centre, Health Education Service, Exhibitions, TV and Radio programmes, sanitary disposal of hospital wastes, etc. (ii) Specific Protection: Immunization, Nutritional care for prevention of anaemia, vitamin deficiency disorders, Sterilization and Aseptic techniques, air-locks and screens in operation theaters, prevention of cross-infections, etc. (iii) Early Diagnosis and Prompt Treatment: Suspicion and investigation for cases of pulmonary tuberculosis and leprosy, Maternal and Child Health Clinics, Laboratory and other diagnostic services for detection of early infections and growths, General Health Check-up, Cancer Detection Centre, Diabetic Clinic, etc. (iv) Disability Prevention: Measures such as keratoplasty, Timely splinting and prevention of stretching of paralyzed muscles in Poliomyelitis, repair of inguinal hernia, and (v) Rehabilitation: Physiotherapy and Reconstructive Surgery, etc.

**5. Trauma Centre:** This includes casualty service, ambulance, blood-bank and communication network.

**6. Medical Social Services:** Welfare services to the patients and their visitors, care of the poor and



have-nots, solving problems of discharged patients, Insurance schemes, general cleanliness and tidiness of the hospital, etc.

**7. Education and Training:** This should not be merely directed to acquisition of knowledge and skill, but the aim should be the effective application of knowledge and skill in varied situations. Emotional and psychological preparation of the students is important. Hospital should find ways for better understanding of the total environment so that the students can understand the significance of the ecological balance in health and disease in particular and human welfare generally. Teaching hospitals continue to train doctors to use diagnostic and treatment methods which are not applicable to most of the patients who go to the general practitioner for relief from simple ailments. Such doctors neither find challenge in dealing with the common ailments of the people nor in prevention of disease and promotion of health. It is here that a teaching hospital should have close collaboration with the local health services. It is needless to emphasize importance of training of nurses, technicians, paramedics & aides. Doing is the best way of learning. Thus, hands-on training, internship and residency assume great importance.

**8. Community Service:** In stead of working within the compound of the hospital, it is desirable to extend the services to the community at large, both urban and rural. Many years back we added General Practice Wing to the set-up of OPD of the Sassoon General Hospitals, and linked it with the Speciality wings. The hospital not only provided comprehensive medical care to the people through

its general practice wing, but also become a focal point of community health care of the Mangalwar Peth Slum area. In this endeavour, it was essential to develop and promote active partnership with the local health authorities and the general practitioners in the area. The community health services established at ten Health Clinics of the Rural Health Centre, Sirur, were internationally recognized. As a result revised rural internship of six months duration was implemented in 23 Primary Health Centres. These unique projects were neglected and eventually closed except some rudiments at the Urban Health and Sirur Centres of BJ Medical College, Pune.

**9. Modern management procedures:** These cover areas such as contractual services, cleanliness, hygiene and sanitation, inventory control, rationalization of the use of drugs, network analysis, epidemiological investigations, record and retrieval system, making hospital patient-centric, etc.

**10. Research:** The research should be for the advancement of science and social welfare. This should include areas such as clinical, bio-medical, community services, health policy, etc. It should be realized that finding solutions to field problems is not less formidable or less challenging than clinical research. In fact, to my way of thinking the field work & effective application of knowledge in a community are much more demanding and difficult than the work in hospital and laboratory.

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# Part I

## Rural Health





# 1. Synopsis of Panchayati Raj System in Maharashtra

**Introduction:** Village community or *Panchayat* has been in existence in India since Vedic times. These 'little republics' were almost independent of outside people in civil and social affairs. This system existed even during the foreign rules. In general, these traditional *Panchayats* have weakened in many areas, while in many tribal villages they continue to be strong. Local Self-governments such as municipalities were established by the British. However, these were largely controlled by the British officers.. After independence, the process of democratic decentralization was initiated and progressively advanced on the recommendations of several committees, e.g., Balwant Rai Mehta in 1958, Ashok Mehta in 1977, and Singhvi in 1986, culminating in the 73<sup>rd</sup> and 74<sup>th</sup> Amendments of the Constitution in 1993.

The Government of Maharashtra appointed the Naik Committee on Democratic decentralization in 1960 to study the Mehta Committee recommendations. In 1961 the Maharashtra Zilla Parishad and Panchayat Samities Act was enacted. Accordingly, Zilla Parishad (ZP) and Panchayat Samities (PS) were established in all districts in Maharashtra from 1<sup>st</sup> May 1962. Village or Gram Panchayats (GP) was already there established under the Bombay Village Panchayat Act 1958. Maharashtra Panchayat Act (1994) replaced the Maharashtra Zilla Parishad and Panchayat Samities Act and the Bombay Village Panchayat Act. In accordance with the 73<sup>rd</sup> Constitutional amendment and the report of the evaluation committee of the Panchayat Raj System in Maharashtra, most of the remaining developmental schemes and programmes, including for health, were transferred to the Zilla Parishads from 9<sup>th</sup> October 2000.

**Panchayati Raj Institutions (PRIs):** This is three-tier structure of the local self-government institutions in the rural areas from villages to the district, viz. Zilla Parishad at district level, Panchayat Samities (Mandal Parishad) at Block level, and Gram Panchayat at village level. The adult villagers constitute Gram Sabha (GS). Finance Commission has to be constituted to review the financial position of the GPs and to make recommendations to the Governor about distribution between the State and GPs of the State resources. In all the PRIs, for the backward classes 27 per cent and for women 30 per cent of the seats are reserved.

Zilla Parishad in Maharashtra is a strong executive corporate authority. ZP is a body of 50-75 members, one for 35,000 population, who are elected by the people in the district. The chairpersons of the PS are ex-officio members of ZP. Chairpersons of the Credit Marketing, Industrial and Co-operative Societies are associate councilors, so also district officer of the Maharashtra State Co-operative Agriculture and Rural Development Bank. Its chief is the President who is elected by the members of the ZP and is given the status of Dy. Minister. The Chief Executive Officer (CEO) of the ZP is an IAS officer in the rank of a Collector and is nominated by the Government. It has two Dy. CEOs who belong to the ZP district cadre. By resolution of 1/3 members of ZP, CEO has to be withdrawn by the Government. However, the Collector has been dissociated from the internal functioning of the ZP and district level schemes are transferred to ZP. ZP has not only traditional civic functions, but also developmental and regulatory functions. Functions of the ZPs are carried out by Standing Committees and seven subject committees, e.g., Finance, Social Welfare, Agriculture, Education and Health. Each committee consists of 8 to 10 councilors and has power to co-opt two experts as associate members. Financial support to PRIs has been institutionalized. ZP has district fund at its disposal, but ZPs are largely dependent on government grants. The Act lists 129 functions all of which are concurrent subjects. Execution and maintenance of developmental schemes related to the subjects such as agriculture, education and public health is the responsibility on ZP. Execution and maintenance of the schemes transferred to it by the State Government, or entrusted on an agency basis, is ZP's function. District Service ZP cadre is a special and unique feature of ZPs in Maharashtra. Included under this cadre are the Dy. CEOs, BDOs, CI III and CI IV categories of all employees including health staff, ministerial staff in all PRIs, village development officer, etc. Without any material changes, ZPs have been able to sustain during last 40 years. The dynamic changes in social, economic and political environment in the rural areas of Maharashtra, is proof enough of their viability.

*Panchayat Samiti* is regional or Block level executive non-corporate statutory committee. It has one elected member for each constituency of 17,500 populations. PS has consultation & advisory



body, i.e., Committee of 15 (1/5 of the GPs in the Block) Sarpanch to be nominated every year by rotation. The Secretary of PS is the Block Development Officer (BDO), to be appointed by the government. PS mostly acts as an intermediate between the ZP and GPs.

*Gram Panchayat* is the grass-roots village level committee of 7 to 15 elected members depending on the population. Duration of GP is for five years. It has powers to impose taxes. It is chaired by Sarpanch who is also elected indirectly by the elected members of GP. There is upa-sarpanch and Standing Committee. Its secretary, Village development Officer or Gram Sevak, belongs to the ZP's district class III cadre and paid by ZP. GP can appoint its own staff, but has to bear the cost. In the Act specific functions and duties to be performed by GP are not clear. GP's role is circumscribed by PS, ZP and government.

There is provision for village fund constituted from the allocations and contributions by the State Government, ZP and PS; the proceeds of any tax or fee imposed under the provision of the Act; proceeds of tax on professionals, traders, etc.; all gifts received; income from properties vesting in the Panchayat; proceeds of the cess authorized; and the other specified sources. GP is empowered to impose taxes and fees on items listed, e.g., pilgrim tax, tax on fairs and festivals, tax on bicycles and vehicles drawn by animals, tax on shops and hotels, trades run on machines, sanitary cess, water rate, lighting tax, fee on market and weekly bazaars, etc.

*Gram Sabha* is constituted by the adults in a village under 73<sup>rd</sup> Constitutional Amendment. It has to meet twice in a year. These meetings are mandatory. If these meetings are not held, Sarpanch shall be disqualified. GP is required to place the annual statement of account, administrative report for previous year, proposed work for development of programme for the current year, etc., before the GS for information and suggestions. However, *GS has no authority to approve and sanction the annual budget or development programme.* In general, poor attendance, limited scope for participation of the poor and women, infrequent meetings, traditional dominance by a few vocal persons, have made GSs ineffective to play their vital role as 'little republics'. (In 2005, the italic limitations are removed and GS is authorized to sanction budget and programmes before GP can implement things.) In Maharashtra, there are 5,264 GPs, 314 PSs and 33 ZPs.

**Urban Areas:** In this review, democratic decentralization in the urban areas has not been considered. However, this is of great significance because of rapidly deteriorating living conditions, and increase and growth of population in the urban areas. The local elected bodies should be the institutions for self-governance. The 74<sup>th</sup> Constitutional Amendment provides for the structure and empowerment of such institutions. These bodies are: Nagar Panchayats, Municipal Councils and Municipal Corporations. In Maharashtra, there are no Nagar Panchayats. At the grass-roots level, Ward Committees to be chaired by the local councilor, are to be constituted.

**Historical Developments:** The Balwant Rai Mehta Committee in 1958 recommended administrative decentralization for effective implementation of developmental programmes, and establishment of decentralized administrative system which should be under the control of elected bodies like the Z.P. and Nagarpalika. The local leadership that emerging at the village, block and district levels had a strong local identity and a better perception of local problems and it came to be regarded as a political threat by regional, state and national levels of political leadership. In effect, there was slow down of the process of decentralization during the 1970s. With the Mehta Committee's recommendations, there was revival of the process. The State Governments were reluctant to part with their powers. The Singhvi Committee in 1986 urged for constitutional recognition of PRIs, transfer of powers and functions, free elections, etc. The 64<sup>th</sup> amendment to the Constitution has brought the PRIs and Nagarpalikas under the concurrent list so that central government can deal directly with the PRIs. Elections to PRIs are to be done by the Chief Election Commissioner. There are reservations for SCs, STs, and women all over. With the 73<sup>rd</sup> and 74<sup>th</sup> amendments of the Constitution in 1993, all round development programmes are to be channeled and effected directly through the PRIs. Fiscal matters will be regulated by the Finance Commission. There has to be genuine and progressive transfer, devolution and dispersal of power and responsibility to PRIs. Thus, there is centralized decentralization, ignoring the State Governments.

**Subjects transferred:** As mentioned earlier, the Government of Maharashtra decided to transfer about 120 schemes under Departments of Agriculture, Animal Husbandry, Women and Child Welfare, Rural Supplies, Public Health, Primary Education, Social Welfare, Cultural Promotion, etc., to the Zilla Parishad. Accordingly, under the



Maharashtra Zilla Parishad and Panchayat Samiti, rules and regulations, 1091, Section 100 (1) (B) and Section 6(2), details were notified on 9<sup>th</sup> October 2000. The programme covering health and related functions, are listed under:

1. Health and sanitation programmes, Primary Health Centres (PHCs), Dispensaries (Ayrvedic, Unani and others), Sub-centres (SCs), Primary Health Units, and Mobile Health Units, together with the concerned staff and officers. This is subject to the condition that PHCs and SCs are to be established according to the criteria laid by the Central and Maharashtra Governments. Policy decision regarding establishment of new PHC, SC and dispensary will rest with the Directorate of Health Services and Zilla Parishad cannot effect any change therein.
2. Malaria Control Programme & associated schemes, together with the District Malaria Officer. This programme is 50 percent centrally sponsored, and ZP has to be strictly adhering the guidelines of the Government of India. The programme will be formulated by the Government of Maharashtra. This will also apply to the control of malaria in the tribal areas.
3. National Tuberculosis Control Programme together with the concerned staff and the directives of the Director General of Health Services (DGHS) and Deputy Director of Health Services (Tuberculosis). Any change will require sanction of Government of Maharashtra.
4. National Leprosy Eradication Programme together with the concerned staff and officers in the rural areas: Working of the Leprosy Technicians will be supervised by the Medical Officer I/C PHC. Jt DJHS (Leprosy) will implement the programme on behalf of the DGHS.
5. National Programme for the control of blindness together with the ophthalmic assistants posted in the rural areas: This programme is 100 per cent centrally sponsored, and ZP has to be strictly adhering the guidelines of the Government of India.
6. District Family Welfare and Rural Welfare Centre. This will be guided and controlled by the District Health Officer (DHO), according to the guidelines of Government of India. However, the projects funded by the foreign agencies will be under the State Government. Similarly, Reproductive and Child Health (RCH) Programme will be controlled by the State RCH Society and the relationship between the Society and ZPs will be finalized as mutually agreed. DHO will implement the programme according to the guidelines of the Government of India.

7. Universal Immunization Programme: DHO will implement the programme according to the guidelines of the Government of India.
8. State School Drive:
9. Preventive measures for epidemics and diseases.
10. Health Education.
11. Rural water supply and drainage schemes.
12. Publicity to Promote health, safety, comfort or convenience of the villagers.
13. Encouragement to voluntary institutions and organizations.
14. Assistance to the local poor and helpless persons.

Public Health Department and the Director of Health Services will have the technical & financial control over the transferred programmes. Since class I and II Officers will be on deputation basis, to facilitate administration, Chief Executive Officer will have powers to transfer them within the district. Power to transfer of class I officers will be with the Government.

#### **Health and related Functions & Developmental Activities of a GP:**

1. Providing medical relief.
2. Maternity and child welfare.
3. Preservation and improvement of public health.
4. Taking measures to prevent outbreaks, spread of or recurrence of any infectious disease.
5. Encouragement of human & animal vaccination.
6. Regulation by licensing or otherwise of tea, coffee and milk shops.
7. Construction and maintenance or control of slaughter houses.
8. Cleansing of public roads, drains, bunds, tanks and wells (other than tanks and wells used for irrigation) and other public places or works.
9. Reclaiming of unhealthy localities.
10. Removal of rubbish heaps, jungle growth, prickly pear, filling in of disused wells, ponds, pools, ditches, pits or hollows, prevention of water-logging in irrigated areas and other improvements in sanitary condition.
11. Construction & maintenance of public latrines.
12. Sanitation, conservancy, prevention and abatement of nuisance and disposal of unclaimed corpses and carcasses of dead animals.
13. Supply of water for domestic use and for cattle.
14. Excavation, cleansing and maintenance of ponds for the supply of water for animals.
15. Management and control of bathing or washing ghats which are not managed by any authority.
16. Provision, maintenance and regulation of burning and burial grounds.



17. Provision, maintenance and regulation of the use of public buildings, tanks and wells (other than tanks and wells used for irrigation) vesting in or under the control of the Panchayat.
18. Removal of obstruction and projections in public street or places and in sites, not being private property, which is open to the public whether such sites are vested in the Panchayat or belong to Government, removal of unauthorized cultivation of any crop on any grazing land or any other land not being private property.
19. Construction, maintenance and repair of public roads, drains, bunds and bridges.
20. Provision and maintenance of playgrounds, public parks and camping grounds.
21. Relief of the crippled, destitute and the sick.
22. Promotion of social and moral welfare of the village.
23. Women's and Children's organizations and welfare.
24. Spread of education, and other educational and cultural objects.
25. Lighting of the village.
26. Regulating, checking and abating of offensive or dangerous trades or practices.
27. Numbering of premises.
28. Registration of marriages in the form laid down.
29. Preparation of plans for the development of the village.
30. Preparation of the statement showing requirement of supplies and finances needed for carrying out rural development schemes.
31. Destruction of stray & ownerless dogs and pigs.
32. Making surveys.
33. Acting as a channel through which assistance given by the Central or State Government for any purpose reaches the village.
34. Establishment and maintenance and regulation of fairs, pilgrimages and festivals.

**Ground Realities:** 1. Theoretically, it is believed that all functions and activities concerning rural areas and which PRIs are capable of administering should, in ordinary course, be entrusted to them. In actual practice, it has been observed that parallel organizations, officers and agencies for such purposes have been established in the State sector at the district level. Although District Planning Committee is a part of 73<sup>rd</sup> Constitutional amendment, it does not exist in Maharashtra. In stead, there is a non-statutory District Planning and Development Council (DPDC) headed by a Minister and the Collector as the Secretary. Apart from DPDC, special poverty alleviation programmes (SFDA), programme for farmers in the drought prone area (DPAP) and intensive tribal

development programme (ITDP) are kept outside the preview of PRIs.

2. Important programmes and schemes, particularly those for the benefit of weaker section of rural community have been retained in the State sector.
3. PRIs are playing an agency role and the control of the transferred programmes rests fully with the Government of Maharashtra. The funds are provided in the State budget and ZPs are dependent on the transfer of grants to them. If the funds are not transferred on time or are inadequate, the programme performance may not be satisfactory. The ZPs may be at risk for being blamed for shortcoming although they are not responsible. ZPs do not act as agent in respect of schemes such as for the poor, under rural development programmes.
4. Local MPs, MLAs, MLCs are barred from the membership of the ZP, but they continue to exercise a major influence on the implementation of the schemes of the PRIs. A legislature committee, Panchayat Raj Committee, of MLAs and MLCs, has power to inspect and review the functioning of ZP and PS, but plays no part vis-à-vis PRIs.
5. The bureaucrats and others have traditional mistrust that the rural masses are unable to manage their own affairs. Therefore, they resort to rule-making and delays.
6. The political wielding authority at higher levels does not really want to shed the same. They would prefer to dole out favours to rural masses directly through government officers, but publicly continue to harp on the rhetoric of decentralization of authority at lower level. Recently, Government reversed the decision, of October 2000, to transfer to ZP schemes run by the Departments of Agriculture, Horticulture and Water Conservation under Section 100 of Maharashtra Zilla Parishad and Panchayat Samites Act. Now these schemes are transferred under Section 123 of the Act, which reduces the role of ZP only that of mere implementing agency.
7. The main constraint on PRIs acquiring the desired status and functioning as agent of development in Maharashtra has been the restrained political will and typical attitude of the bureaucracy which regard PRIs as subordinate institutions. Members of PRIs have no interest to increase the resources of GPs, trained staff is in short supply, and finance and control over it are inadequate.
8. Members of PRIs have only little knowledge and skills about their role and function, planning and implementation of programme, etc. Many women have become Sarpanch of GP, many of them are wife of earlier member or influential person. Thus, several of them are not competent or work as proxy.



9. A comprehensive study of five States in India for effectiveness of PRIs as instruments of decentralized governance revealed varied scenarios: (a) Decentralization is effective and decision making is participatory and effective. GS and GP have worked well and brought social and physical reforms to the village and improved the physical quality of life. In such villages, the people had their own skills and assets, and access to information about choices for earning livelihood. They had knowledge about their rights and responsibilities. (b) Decentralization was not so effective in securing participation in decision making, etc.

People were apathetic and not interested. People did not want to participate and participation was mostly passive and the extent of participation was little or non-existent. Gram Sevak or a local powerholder or influential person or group took over GP control. Local influential people had ownership of land and/or other opportunities for secure livelihood. This was in a way feudal decentralization.

Table 1 shows comparative data on Health Indicators in selected States by extent of empowerment of the Panchayat Raj Institutions.<sup>1</sup>

**Table 1:** Rural Health Indicators in Selected States by Extent of Empowerment of the PRIs

State Categories	CBR	CDR	IMR	EL <sup>0</sup>	TFR	P<15	LR
<i>With Empowered PRIs</i>							
Maharashtra	23.5	8.8	58	62.0	2.7	35.9	52.3
Tamil Nadu	19.3	9.1	58	60.5	2.0	30.0	51.3
Gujarat	26.9	8.5	71	59.1	3.0	33.6	48.6
Andhra Pradesh	22.8	9.7	75	59.7	2.5	34.9	32.7
Karnataka	23.1	8.9	70	60.1	2.5	33.9	44.3
West Bengal	23.4	7.7	56	60.0	2.6	36.8	46.7
<i>Average for India</i>	<i>28.0</i>	<i>9.7</i>	<i>77</i>	<i>58.0</i>	<i>3.3</i>	<i>37.7</i>	<i>39.3</i>
<i>With Disabled PRIs</i>							
Uttar Pradesh	33.4	10.9	89	55.0	4.8	41.1	25.3
Madhya Pradesh	32.1	11.8	103	52.3	4.0	39.9	28.9
Rajasthan	33.0	9.2	87	55.6	4.2	39.3	20.4
Bihar	32.1	9.7	68	57.7	4.4	41.8	22.9
Orissa	26.4	11.6	101	54.9	3.0	35.6	34.7
Assam	28.5	10.5	82	54.1	3.2	39.6	43.0

Source of Data : Foundation for Research in Health Systems (1999), Health Monitor, Ahemadabad.

Note : CBR = Crude Birth Rate, Rural, 1998.

IMR = Infant Mortality Rate, Rural, 1998

EL<sup>0</sup> = Expectation of Life at Birth, Rural, 1989-93.

P<15 = Percentage of Population below 15 Years of Age, rural, 1996.

CDR = Crude Death Rate, Rural, 1998.

TFR = Total Fertility Rate, 1997. Lowest of 1.8 in Kerala.

LR = Literacy Rate, Rural, Female, 1991.

**Requirements:** 1. Transfer of health and other programmes to PRIs will be genuine decentralization only if this is associated with freedom of decision making. Currently, the powers are limited to administration and implementation of the programmes and schemes. This is just an alterative to the Government Departments and the PRIs function as agents. Freedom for PRIs is needed for planning, finance and execution of all district level development programmes and schemes. Need-based modifications are often needed for effective implementation of the primary health care programmes and for solving local problems. At present

PRIs are not empowered to do this. Devolution of powers, finance and persons should be made simultaneously and more effectively. This flaw should be rectified, and planning, administration and fiscal powers transferred to PRIs.

2. PRIs should have discretionary powers. Panchayat should draw up their own micro-level development plan and prepare resource data in a participatory way. Gs and GP should mobilize local resources through means like taxes, fees, etc., for which they have been authorized.

3. Municipalities with population of 10,000 or about, have essentially rural characteristics. They



are worse affected as not eligible for benefits of municipal corporation or ZP. Thus, the small municipalities need special attention. Similarly, small and weak Panchayats should be given special consideration.

4. Rural water supply schemes, each up to Rs. 1.75 lakh have been transferred. ZP is empowered to construction and supervision of the schemes. This is a challenge to the ZPs, and technical and other supports should be provided by Government, if needed.

5. It is expected and necessary that the proposed Finance Commission should provide the programme and scheme funds directly to the ZPs or the Gram Sabha as appropriate. With the transfer of schemes, the State budget for these schemes should be fully transferred to ZP or GP as the case may be.

6. Gram Sabha is a soul of Panchayati Raj System. It need to be strengthened and clothed with more powers so that it will have more effective control over the functioning of Gram Panchayat. As done

in Punjab, GS should have the authority to approve & sanction annual budget & development programmes. Similarly, as in Bihar, GS should be empowered to have its vigilance committee and monitoring committee to oversee the function of GP.

7. There is no organic link between ZP, PS and GP, nor there is clarity of functions. This defect should be rectified.

8. Decentralization should be considered as a measure of debureaucratization. It should visualize giving 'voice' to the 'voiceless' and power to the powerless.

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**Note:** (1) Since March 1995, monthly magazine 'Panchayat Bharati' is published by Panchayat Raj Prabodhan Trust, Thane-100602. It is in Marathi and very informative. (b)' Panchayat Raj Update' is another monthly publication in English. It gives information and developments in different States. Published by Institute of Social Sciences, Mandela Road, New Delhi – 110070.

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**Reference:**

1. Deodhar, N.S., Regional Conference on Public Health in South-East Asia in the 21<sup>st</sup> Century, World Health Organization, Calcutta, 2-24 November 1999



## 2. Closing Report, 2007, on MARDEF Pabe Pratidarshak Prakalpa

**Preamble:** The project was initiated in June 2004. Despite national programmes since the first Five-Year-Plan, development of the villages in India has remained tardy and without much impact. This project is an experiment to develop insight and evolve an approach to rural development. The objective is to study ways of ensuring sustainable development and welfare of rural population. Strategies are: (a) Multi-sectoral approach to ensure comprehensiveness, (b) Integration through trans-disciplinary activities, (c) Involvement and active participation of the target population, (d) Promoting community organization and community initiative towards self-reliance, (e) Essential supports such as science and technology, linkage to and full utilization of Governmental services and programmes, (f) Recording and analysis of grass-roots information, and (g) Generating local database for decision-making and micro-planning.

Self-reliance is a key to sustainable development. Thus, Pabe village was not adopted by MARDEF of the Bank of Maharashtra. In this programme, there is neither any intension of giving grant to the Panchayat nor free services to the people. The main endeavour is (a) to help the village to fully benefit from the official developmental schemes, (b) to empower people and Panchayati Raj Institutions, (c) to give scientific and technology support, (d) to improve local organizations by way of training, counselling, income generation, and (e) to guide for economic development, etc. In some special instances MARDEF may provide limited funding as desirable as essential input, e.g., supply of additional books for library, vocational training for self-employment, grant for building Village Development Fund, grant of loan through the Self-Help Groups, providing local contact person and coordinator, etc.

We have secured cooperation and full support of experts and agencies working locally. These include: Dr. GA Panse, Ex-Addl. DHS, Maharashtra, Prof. RK Mutatkar, founder member, Maharashtra Association of Anthropological Sciences, Dr. SV Mapuskar, Director, Jyotsna Arogya Prabodhan, Dehu, Shri. Wishwas Rane, and Shri Vivek Giridhari and Shri. Yadav of Dynaprabodhini, BDO of Velhe Taluka, and Medical Officers and staff at the Primary Health

Centre and Rural Hospital, Velhe. Shri. VR Giri, RDC, Hadapsar, MARDEF, is providing necessary assistance.

Dialogue was opened with the villagers through field visits, meetings, group discussions, lectures, demonstrations, etc. There was some response, e.g., gathering of women at Self-Help-Groups, mothers and children attending services at 'Parivartan Kendra', Farmer's meeting, etc. However, response from the Sarpanch, Gram Panchayat and villagers is not satisfactory. Participation is limited to availing health services and cooperation during surveys. One of the main reasons seem to be the policy of the Government of providing free services and subsidies, exemption for repayment of bank loans, etc., has vitiated mindset and corrupted the rural population. Experience since mid-2004 reveals that Pabe village is politically divided, the leadership is weak and not keen on village development, and Gram Sabha is apathetic and not assertive. It thus represents a typical test village and worth experiment with.

### **Shift from Comprehensive Village Development Project to Integrated Health Development Programme:**

Pabe village was selected for water-shade development and project was submitted to CAPART for financial support. While the approval was awaited, MARDEF decided to expand the scope of Water-Shade Development of Pabe and Comprehensive Integrated Pabe Village Development Programme. Dr. NS Deodhar volunteered to look after Pabe project. Water-Shed Development Project (WSDP) was one of the most interactive dialogues with the villagers. However, proposal for funding WSDP was not approved by CAPART. On insistence of the Board of Trustees, Bank of Maharashtra agreed to fund WSDP and provision of Rs. five lakh was made for the current year, as first installment. Members of Village Panchayat were informed about it. They were also told that the funds will be available provided initiative was taken by Panchayat for raising its income adequately through taxes, contribution for villagers, etc. In spite of reminders from Dr. NS Deodhar, no step has been taken to initiate implementation of WSDP in Pabe. Apparently MARDEF has no interest in Pabe comprehensive project.



This situation has defeated the very foundation of comprehensive Pabe village development project. While Dr. DR Bapat and Dr. RK Patil joined in respective areas of their expertise and participated, Dr. NS Deodhar felt that his efforts in following 'non-health' items of development resulted in delay & neglect of health development. From April 2005, Dr. NS Deodhar has concentrated on health development aspects *per se*.

**Major Activities and Results:** Monthly reports are regularly circulated to all Trustees. These reports fully cover progress and development of the programme in all respects and in details. This review and brief simply provide an overview of various activities.

(A) **General Items:** (i) Surveys – Base-line Health and Socio-economic Survey, and Morbidity (illness) Survey covering all households was one of the earliest activities during 2004. Maharashtra Association of Anthropological Association assisted MARDEF for more than a year by assigning its Medical Social Worker, Mrs. Vidula purohit and Mrs. Bhupali Mhaskar Health Scientist, for work in Pabe. Information was compiled and analyzed. The reports in Marathi and English are available and were shared with the Sarpanch and BDO. These primary data and tabulated information will be useful for need-based micro-planning, evaluating progress, etc. Socio-economic survey was done by trained local volunteers from Velhe and Pabe. Morbidity (illness) Survey was done by a team of Multipurpose Health Workers from the Health and Family Welfare Training Centre, Pune. Schedules for Agriculture Survey have been prepared.

(ii) Numbering Houses – Scheme for numbering houses was prepared. Primary number helps to identify the house in Pabe and sub-number provides the name of wadi/vasti and serial number of the house in it. Thus, 102/R26 means that village serial number of the house is 102, and the house is in Ramwadi with serial number 26. Each house has a number plate fixed at the entrance.

(iii) Village Maps – Initially, village and wadi maps were prepared with the help of school children who were guided by a teacher from School in Dapode village. CDAC, University Pune, was approached for help. However, the images provided by them gave topographical details. Mapping of houses was found to be cumbersome. Later, Dr. NS Deodhar located the village from Google remote imaging 2006 Digital Globe. The images were marked and copied. From enlarged images colour maps are

prepared from the entire village and separate for each wadi/vasti. The maps clearly show roads, houses and other topographic features. National Institute of Rural Development has also agreed help in preparing maps of various kinds for Pabe development, e.g., water shade development.

(iv) Micro-planning and Bottom-up Planning – Draft micro-plan for comprehensive development of Pabe Village has been prepared. This is still pending with Shri. Ashok Pavde, BDO, Velhe Taluk, for upgrading it by incorporating ZP and Governmental Schemes.

Lessons on bottom-up planning were significant. Local leadership was a vital factor influencing rural development. As at Pabe leadership was lacking, Varoti village with better leadership was taken as a control. Despite sharing data from the surveys and a document to facilitate micro-planning of Pabe, the draft prepared by Sarpanch of Pabe was deficient in many ways. It was mostly a list of private wells to be repaired, etc. & without any income-generating or infrastructure development item. As against this, Varoti villagers had no advantage of survey-based information. But their draft plan had better list of village problems and needs, and income-generating items based on use of rice-husk. Even with this limited example, it seems that at the grass-roots, villagers who are born, brought-up and live locally for generations, possess adequate and up-dated information and knowledge required to list their problems, needs, resources and priorities. Use of this intrinsic information was considered adequate to get idea about the felt local needs and problems at the grass-roots.

In a special briefing, Dr. Mrs Anita Beninger was introduced to the villagers and her contributions to micro-planning in Bhutan, Sri Lanka, other State in India, Ratnagiri District, were explained. She had very effective interactions through out the meeting. She suggested new taxes, e.g., 50 paise tax on every litre of milk sold by the farmers to the Private Cooperatives and others. On average 800-900 litre of milk is sold daily by the farmers at the milk collection centre at Pabe. If suggested tax is levied say on 800 litres, Panchayat will get Rs. 400 per day, Rs. 12,000 pr month, i.e., Rs. 1,44,000 per year. With this income from a single low level of tax to rich farmers, Panchayat can bring several direct benefits to the villagers, e.g., sanitization of the cow shades, arrange for good quality of animal feed at discounted price,



easy access to veterinary doctor, etc. However, Panchayat member's were not prepared for taxation.

Subsequent to the meeting, MARDEF team could visualize much greater developmental potential of such a fiscal asset, even empowering Panchayat to build sanitary latrines to all household within two years. On cross verification from the survey data, viz. a total of 134 farmers who sold milk were earning on average Rs. 1,250 per month. The monthly income works out as Rs. 1,67,500; and at rate of milk say of Rs. 10 per litre, the quantity of milk sold would be 16,750 per month. Thus, @ 0.50 paise per litre, Panchayat will get Rs. 8,375 per month, or Rs. 1,00,500 per year. Though the difference can be easily accounted because of obvious element of under reporting of income by the farmers, extra income of about Rs. one lakh a year will be big gain to the Panchayat. Even one rupee tax per litre will be less than one per cent of the income.

The purpose of bottom-up planning is primarily to ensure that programmes are need-based and will take care of both the felt needs of the people and those as visualized by the experts. As indicated earlier, most of the villages will be able to provide this input without any need for survey, and can be gathered and compiled by BDO. This answers one important issue – what constitutes the bottom for planning? Obviously, it is a Taluka and not a village. In view of this conclusion, BDO was requested to prepare Taluk Development Plan. He has been assured of technical or other type of assistance in this regard. The higher levels are district, State, Region and Nation.

(v) Study cum Demonstration Visits – Visit (July 2004) to Dehu and Kaludari villages was with a purpose to put on show to the selected villagers from Pabe (a) the work done by the Kaludari village and improved environmental sanitation on their own, (b) how all the families in Dehu have their own latrine, some of them even in the kitchen, and (c) see several Gobar-gas plants which are in operation for over 15 years. They will also witness as to how some of the enlightened persons have allowed use of their latrine to the neighbours on payment and earn monthly income of Rs. 450/-. Nearly 35 villagers volunteered for this tour and paid Rs. 50/- per head and carried own lunch packet.

(vi) Involvement of Health Department, ZP, Pune – On 29<sup>th</sup> October 2005, Dr. N.S. Deodhar; Dr. G.A. Panse; Dr. S. Dodwad, Consultant European

Commission, met and briefed DHO, Pune Zilla Parishad, on objective and work of MARDEF comprehensive village development programme in Pabe. For development of micro-plans for Pabe and Varoti Group Panchayat, it was necessary to collaborate with Z.P. Pune. It was also desirable to avoid duplication and developing parallel system. DHO promised full cooperation and help. However, he failed to fulfill any of the promises. Dr. Y.H. Doiphode, Dy. Director, Health Services, Pune Circle, did not show any interest.

(B) **Health Development:** (i) Institutional approach and Arogya Seva Satra – Field staff such as ANM and Male Multi-Purpose Health Worker of the Primary Health Sub-Centre provide door-step services to the people. This extension approach has many disadvantages. Over 80 per cent of time is spent in travel. This procedure was changed to *institutional approach* where people are encouraged to attend new innovative activity by ANM, Arogya Seva Satra held regularly once a month on a fixed day, irrespective of holiday, etc. The advantages of this innovation are (a) improved quality and extent of services, (b) effective use of the equipment and institutional facilities such as weighing, laboratory tests, etc. (c) full utilization of time of the trained staff for delivery of services rather than in travel from house-to-house, (d) improving the potential of reaching all needy families, and (e) improving the cost-effectiveness of delivery of health services. In Pabe, Arogya Seva Satra is regularly conducted on 15<sup>th</sup> of each month. Arogya Seva Satra is very popular now and attendance has significantly improved. Therefore, work-timing has been full day from 9 am to 5 pm from September 2006. With obvious advantages and success, Arogya Seva Satra (ASS) concept has been extended and ASS is opened in 240 villages in Pune District by KEM Hospital Research Society, Pune.

(ii) Parivartan Kendra – This is another innovation in Pabe. It has been designed as a physical symbol for health development. It is significantly upgraded version of PHC Sub-centre. With generosity of the Sarpanch, it is housed in one of the rooms of newly constructed Panchayat Building. It provides all facilities, equipment, etc. required for basic health and medical care to the villagers, e.g., conducting health clinics, medical examination by a doctor, etc. Simple laboratory tests for blood, urine, sputum, etc., can be carried out. Arogya Seva Satra and group meetings are held here. Smt. Alka Rajivade, ANM, PHC, regularly attends and conducts MCH and immunization clinic, etc. Smt. Nirmala Hande, Parivartak, a trained local health worker and



coordinator is in charge and looks after the Kendra. Health records are maintained at this Kendra. Smt. Hande has opened Savings Account in the name of Parivartan Kendra, Pabe, in Bank of Maharashtra, Velhe.

(iii) Parivartak – Appropriate change in mind-set is considered as basic need for sustainable development which is possible only if villagers participate actively and are able to take initiative for social action. In this direction, concept of having a new village functionary to work as Parivartak, was tested. Duties and expected functions have been documented. An experienced person from Pune was given this work, but he failed. On trial and error basis some local volunteers were trained, but none of them had necessary mind-set. Mrs. Nirmala Hande, has volunteered to work as Parivartak. She is working satisfactorily. Apart from participating in MCH clinics, she provides treatment of minor ailments and collects prescribed five rupees for a day. She has good liaison with the villagers. She informs and motivates people, collects and records vital events, keeps family folders and other records, deposits collected fees in Bank, and submits monthly reports. At household level, it is proposed to identify 2 to 3 volunteers from each Wadi, or about one person for 15 to 20 families. They will function as information seekers and providers, and helpers to Parivartak.

In the beginning, Shri. Giridhari of Dyanaprabodhini, Pune, helped and supported MARDEF activities at Velhe. Its local set-up at Velhe did follow-up at grass-roots, monitoring, and supervision. Parivartak is now doing this work.

(iv) Health Management Information System – Necessary instruments for data gathering & compilation have been prepared. Numbering of household has facilitated identification of every family and family member in Pabe. Computerized data-base has been created so that health and other services provided, especially for pregnant women and children below six years of age, can be entered in village data-base files. Special outputs, such as list of children to be immunized by the vaccine and dose required, house number, etc., are designed. This facilitates work of ANM and helps to ensure service to all individuals vis-à-vis their health care service needs at an appropriate time. Thus, delivery of need-based services to the families and follow-up can be assured. This will ensure totality of health services coverage, sustainability and equity.

Vital statistics are kept updated by collecting information on new births, deaths,

pregnancies and outcome, and marriages. Family record and lists of recipients of preventive health care services are updated accordingly. Smt. Hande submits monthly report on 15<sup>th</sup> of every month on prescribed format. She maintains diary for recoding her work and reminders.

(v) Family Folders – Folders for all 249 families have been assembled by putting together the Family Data details and various forms as may be required for health records of family members, especially pregnant women and children under six years of age. For regular use, folders are kept in the Parivartan Kendra in a specially prepared box so as to facilitate immediate and easy retrieval of any of the family folders. Information is updated as and when services, e.g., immunization and maternal health, are provided and notification of vital event is received. Copies of two folders are in RDC for inspection.

(vi) Health of Women – *All pregnant women in the village are registered for ante-natal clinic* where necessary examination, investigations, immunization, advice, etc., are provided. Follow-up care is given on 15<sup>th</sup> of every month. Safe delivery by trained and experienced attendant is ensured in all cases.

(vii) Child Health – Every birth is registered and baby registered for care. All children between two to six years are given full immunization doses according to the national schedule. Children under two years of age have received expected vaccines and appropriate doses of the same. Thus, as against State average of 50% coverage, *Pabe has achieved 100% primary immunization coverage*. Programmes are planned to cover all children between 6 and 12 years for a booster dose of Diphtheria-Pertussis vaccine, and in due course all persons over 12 years will be given Tetanus Toxoid, one or two doses, as required. Growth monitoring of children below five years of age, has been initiated.

(viii) Treatment of Minor Ailments – Village Parivartak, Smt. Nirmala Hande has been trained in treatment of minor ailments. She is also helped and guided by Smt. Alka Rajivade, ANM, PHC, during the Arogya Seva Satra. Primary Health Drugs, and dressings materials which are required for care of minor ailments and injuries are available at Pabe Parivartan Kendra. These are available on all days.

(ix) Care of Patients with Chronic Ailments – During the Morbidity Survey of Pabe village 47 persons who had chronic ailments were detected. As a follow-up action, they were contacted,



examined, advised and provided referral to hospital or specialist. It was reported that many of the chronic patients who were referred to Velhe or KEM Hospital, Pune, got relief and are satisfied. Vishnu Damodar Lohar, case of polio-paralysis in childhood came with his father for further guidance and advice. He was advised to apply for training in welding/carpentry to BoM Training.

(x) Referral Services – These are arranged for diagnostic procedures, operations, hospital and specialist care, treatment of chronic ailments, complications of ailments, accidental and medical emergency, etc. In consultation with the family involved, referral note is given by Parivartak to the Rural Hospital, Velhe; KEM Hospital, Pune; or Private Consultant or Hospital as desired by the patient's family.

(xi) Computerization – Continuity of care and totality of services coverage are essential in public health practice. Data and information which are necessary for this are often not available and otherwise are not easily retrievable. Pabe village Development Project provides excellent opportunity to develop necessary digital programme of soft ware for this purpose. Each Family in the village has relevant details on health in their Family Folder, duly updated. This will help data required for delivery of need-based services, follow-up care, programming (family & person-wise), & micro-planning for the village community. As marriage, pregnancy, birth and death are reported, family folder is updated and names are put on service list such as immunization, ANC clinic, etc.

Automation provides monthly updating age of children below two years of age, from a given birth date. For others, updating is annual, either from birth-date or stated initial age. Similarly, name of new-born gets added to the family and name of the dead is deleted and transferred to list of deaths during last five years. Pregnant women's name is added to ANC clinic. In about a year or so, simple digital Health Package is expected to be ready for trial elsewhere.

(xii) Varoti Village: This was selected in June 2005 as a control village because of its better leadership and villagers are better organized and cooperative. This village is about 12 km from Velhe and takes about 45 minutes by car to reach there from Velhe. Village has about 55 families and population of about 500 persons. Main occupation is paddy cultivation; *nachani* and *varai* are also grown. Dairy is another occupation with sale of 260 to 375

litre of milk daily to a private agency. Early in 2005, there was an outbreak of gastroenteritis in a nearby village. As a preventive measure, on 13<sup>th</sup> February 2005, each of the 55 families in the village was provided water filter by Dynapro-bodhini. Since then all the families are using the filters and drinking filtered water. Not only all of these are still in use, but the village has maintained family-wise record of filter use, any illness (symptoms and diagnosis), etc. The record were examined and confirmed. This has resulted in significant drop in illness of the community. On 16<sup>th</sup> December 2005 all the filter beds were replaced. Full acceptance was evident not only because of spontaneous replacement, but also of payment by the villagers of their share of half the cost of replaced filter. People have also developed taste of filtered water and desire no change.

The villagers are ready for development. They provided free labour for blasting a reservoir for storing rain water. About 30 villagers who attended the meeting. In marked contrast with Pabe situation, in Varoti village in all the houses latrine site and marking for twin pits were completed in Dec. 2006. All have constructed latrine platform, but type of superstructure will be family choice.

(xiii) Health Talks – About 200 students of the Tanaji Malusare Vidyalaya, Dapode, gathered at the school on Sunday, 1<sup>st</sup> May 2005, Maharashtra Day. They were addressed by Dr. S.V. Mapuskar on "Clean and Neat Village" advocating the students to take up Summer Vacation drive to clean-up their house and the surrounding area and maintain the house clean and tidy. There was demonstration of preparing a soak-pit for disposal of waste water from drinking-water tank of the school. Second demonstration was on vermiculture by cutesy of INOVA, Pune. Villagers took interest and participated in two demonstrations. Students were distributed a small pack of ground-nuts. It was as an exercise on cleanliness and all were required to deposit the papers in the disposal bins provided near by. There was no indiscriminate throwing of rappers. Assembly was a grand success. On 9<sup>th</sup> February 2006, meeting was held at Varoti village to inform villagers basic facts about human body, its defense mechanisms, sickness and illness, role and limitations of drugs, etc. Dr. W.V. Rane did remarkable job to explain these things to over 45 villagers who participated in the discussions. Meeting of villagers was held in Pabe on 28<sup>th</sup> February 2006, at 7-30 pm to explain Parivartak Kendra, & to inform and ensure active participation and utilization of services by villagers. They were







**(C) Community Organization:**

(i) Self-Help Groups (SHGs) – Community organization plays a vital role in promoting of social activities and initiatives. In this regard, with assistance from Dyana Prabodhini, Pune, eight Self-Help Groups (SHGs) of women have been established in Pabe. In October 2004, Shri Tirandaj gave excellent discourse of the objectives, functioning, problem solving, and family and community welfare and development opportunities for SHGs. These SHGs should not work merely for self-help as they are now, but function for Development. On 15<sup>th</sup> April 2006, meeting of the selected members of the SHGs and prominent villagers was arranged. Dr. Deodhar, Sarpanch Shri Renuse, Shri P.T. Gavade, Mrs Ganapati and Shri Giri participated and conducted the deliberations. Shri Gaikwad, SHG Coordinator from Velhe, provided initial briefing. It was decided to establish more SHGs to cover entire village, strengthen their functioning, initiate economic activities, empower women and promoting SHG groups for men and youth. Smt. Ganapati, RDC, Hadapsar, was requested to look after the developments.

(ii) Development of Village Level Leadership – Involvement, active participation, and initiative on the part of villagers were considered as the critical and key issues that need urgent attention. For this purpose proposal of one year duration from Dynaprabodhini, Rural Development Division, having experience and expertise in local leadership development, was approved. Quarterly reports on this activity are available at RDC.

(iii) Establishing Bal Panchayat System – In Maval Taluka, Pune District, Bal Panchayat has been established in each of 50 villages. This has resulted in better informed and bolder boys and girls. Their activities cover education, cultural and sports, health and social forestry. They have successfully helped schooling of children from poor families. In one instance they were able to prevent marriage of girl of less than 18 years. We wanted to replicate the system in Velhe Taluka. On 27<sup>th</sup> January 2006, Maval team visited Tanaji Malusare School, Dapode to meet school children from Pabe and adjoining four villages. After introductory remarks by the Head Master and Dr. Deodhar, Master Deepesh Uduphe, 6<sup>th</sup> Standard, Secretary of one of the Bal Panchayats, explained about their work and how they function. This was followed by talk by Miss Tara Ghule, 8<sup>th</sup> Standard, President, Bal Panchayat Parishad, Maval. She talked about the rights and responsibilities of the children. She

elaborated how this has helped them and the villages. However, the audience was not responsive to her questions. At this point we all and the teachers left the hall and left the students by themselves. This changed the scene and there was magnificent exchange and deliberation for little over an hour. It was decided that the children from the selected villages will meet, take decision on having Bal Panchayat and select two or three volunteers. Maval Organization was to give in about two weeks, a proposal and manner in which they will establish Bal Panchayats in Velhe Taluka. The first action will be a day-long visit of the volunteer children from Velhe Taluka to some villages in Maval and participate in working of the Bal Panchayats. Programme of Balpanchayat at Pabe with the help of Maval Taluka Balpanchayat, was abandoned because of lack of positive response from them despite repeated contacts. Response from local children was lacking. The resources will be utilized for organizing Pabe children, and encouraging and educating them to undertake self- and village development. It is in this regard we have embarked on training of adolescents in Pabe.

(iv) Creation of Village Development Fund – MARDEF has made provision for matching grant of Rs. two lakh. Rules for operating this fund are approved. Response of Pabe was poor. Varoti Group Gram-Panchayat has shown interest. Having set target of Rs. two lakh, it is trying to mobilizing adequate contributions/donations by end of March 2007. But there was no response.

**(D) Other Health-Related Sector Development:** (i) Water-Shed Development – On this project, we had one of the most interactive dialogues with the villagers. Incidentally, in July 2004, the central portion of one of the two major Bund in the Pabe water-shed was washed away due to heavy rains. On inspection it was observed by Shri. V.G. Dandawate, Dr. D.R. Bapat, and Dr. R.K.Pati, that the reason for the breach of the bund was improper construction. The core of the bund has to be made out of black clay. The cross-section of the central breach, revealed its total absence. Eventually, proposal was not approved by CAPART. Bank of Maharashtra agreed to fund this project fully and provision of Rs. five lakh was made for the year 2006-07, as first installment. However, MARDER has shown no interest and failed to initiate necessary action. This is despite request, reminders and specific suggestions by Dr. NS Deodhar. It is hoped that MARDEF takes initiative and perform.



(ii) Drinking Water Supply – A scheme, costing about 40 lakh, for supply of drinking water was sanctioned for Pabe village by the Z.P., Pune. This involved pumping of water from a bund and laying pipe-line for about 3 km. Work is complete. Water is pumped and stored in the old water reservoirs located at different Wadies and also in new water tanks constructed near the schools.

(iii) Construction of Family Latrines – This topic was initiated in early 2005 with two hour slide-show and lecture by Dr. Mapuskar in a well attended evening meeting of the villagers. Dr. Mapuskar's offered necessary help by his organization, e.g., construction of first couple of latrines by his trained staff. During this phase, the local artisans will be involved and trained so that new self-employment will be created for regular construction and maintenance. "Otta -latrine base" or latrine-pan platform connected to two pits with a system of pipes' can be constructed at estimated cost of Rs. 1,000=00 per seat. For privacy, superstructure can be built by the owner as per his/her requirement and ability to finance. Maximum estimated cost is Rs. 7,500/-. Some families expressed willingness to pay for such facilities. In reality, there were none.

On 15<sup>th</sup> November 2005, meeting was arranged when about 100 villagers attended. Apart from Dr. Deodhar, Dr. Panse, Dr. Mapuskar, Shri Giri and Shri Yadav, other visitors were Shri. Ashok Pavde, new BDO, Smt. Renuse, Chairperson, Panchayat Samiti Velhe, officers from office of BDO, and Dynaprabodhini field staff. Shri Pavde was very effective in communicating the social reasons for need of latrines and cleanliness. Dr. Mapuskar visited one house, examined the suggested site for latrine, and provided details of dimensions, construction, etc. Rural-area-specific latrine pans were purchased by seven families for Rs.150/- each. None of the families, however, constructed latrine.

In November 2006, ZP scheme for construction of sanitary latrine by each family in Pabe, is being implemented in Velhe. Material such as bricks, cement, etc., is being provided by BDO's office. Financial arrangements are by way of loan of Rs. 7,000/- per family sanctioned by a cooperative society. Minimum cost of construction is estimated as Rs. 4,000/-. Although the recommended design is of standard Two-Pit Latrine with a special type of pan suitable for hand flushing; technical details have been ignored. Only one pit has been dug and the pan used is of a type

that will need overhead flushing. Attention of Sarpanch and BDO was drawn to these lapses and Dr. Mapuskar informed CEO, Zilla Parishad, Pune. Progress of work is very slow. By end of January hardly any family has completed construction and is using latrine.

Help was offered for construction of Gobar Gas-plants, disposal of solid wastes and waste water, vermiculture, etc., by Dr. Mapuskar. However, there is no demand.

(iv) Strategy for Agricultural Development – Dr. Deodhar, Dr. D.R. Bapat, Dr. R.K.Patil and Shri Giri met on Wednesday, 22<sup>nd</sup> Sept. 2004, at Maharashtra Association for Cultivation of Science to decide on a plan of action. Shri. V.G. Dandawate, Agro-Horti-Watershed Consultant participated as special invitee. After threadbare discussion by the three experts, it was agreed to take-up the following four tasks: (a) Establishment of one or two Farmers' Clubs in Pabe. NABARD guideline for Vikas Volunteer Vahini will be followed. Grants of Rs. 30,000 per Farmers' Club are available under this scheme. (b) Conducting Agriculture survey of Pabe (c) Kharip Paddy and other cultivations will be reviewed and farmers suitably guided to maximize production. (d) Farmers will be guided for the Rabi Crop preparations and advised on new technology and crops for enhancing income & improving soil quality. (e) Reviewing Water-Shed Development project under consideration of CAPART in view of some bund construction work under employment guarantee scheme during draught period. It will be examined whether some work for water management can be taken up in advance of CAPART sanction of the project. It was decided the team will visit Pabe Village at earliest for field inspection, meeting farmers and initiating the above mentioned activities.

On 29<sup>th</sup> September, Shri Giri organized visit of Dr. Deodhar, Dr. D.R. Bapat, Dr. R.K.Pati, and Shri. V.G. Dandawate to Pabe. Apart from MARDEF and Dynaprabodhini members, Upa-Sarpanch and more than 30 farmers and 15 women attended the meeting. After introduction, the group was briefed on the purpose and preparatory activities under MARDEF programme for comprehensive and integrated development of Pabe. After this Dr. Bapat extensively covered the topics of Kharip Paddy and Rabi preparations for traditional and other crops and advised the farmers on the use of new technology and crops for enhancing the production, income generation and



improving soil quality. The farmers actively participated, asked questions, shared their experiences during the discussion. One of the farmer has been using the new technique of paddy and reported that his yield increased by over 50 % last year over the traditional way. It was decided that demonstration showing early impact of the new method should be arranged at his and other three farmer's field, by way of comparison. Then farmers were explained about the NABARD scheme of formation of Farmer's Club. Dr. Bapat informed and told the way in which farmers can produce their own seeds for next year. The issue of the use of fertilizers was also covered. Dr. Bapat has prepared a draft schedule for conducting Agriculture survey of Pabe.

(v) Farmer's Club – One of the objectives was making the farmers active for leadership role in village development task. Meeting of the farmers was organized to consider following agenda: (a) Establishment of one Farmer's Club under the NABARD Scheme. (b) Review of Kharip Crops with a view to improve the yield and prevent losses. (c) Consider Rabi Crops vis-à-vis technology transfer, selection of new crops with greater profit, securing reliable seed and appropriate fertilizers, etc. (d) Conducting Agriculture Survey, and (e) Review of CAPART Water-Shed Development Project in view of works carried out in draught relief employment. Dr. Bapat, Dr. Deodhar and Shri Giri attended meeting 7 pm on 21<sup>st</sup> February 2005. Over 65 farmers and 25 women attended, this included the Sarpanch and Upa-sarpanch. Dr. Bapat asked several questions to the farmers to ascertain the state and practices of farming. The main demand of the farmers was to make water available by way of lift irrigation from the near dam lying several km of pipeline. There was of much of deliberation on these and other issues of improving production and income. It was agreed that the farmers should get organized, deliberate and put up proposals to the concerned authorities. The list of proposed members was scrutinized and those who were defaulters were excluded. Fresh suggestions were made, especially to ensure representation of farmers from different wadies and some women. Application form was completed with the signatures of the farmers who volunteered. The Bank Agent I/C Velhe will follow-up the proposal for sanction. Follow-up is poor.

(vi) Training of Leaders on Panchayati Raj System – Maharashtra Association of Anthropological Sciences has experience in this field and has necessary training material. Training was to cover

role, powers, function and responsibilities of Gram Panchayat and Gram Sabha. On attending Gram Sabha meetings twice, it was found to be non-functional. Panchayat members were apathetic. Plan was therefore postponed.

(vii) Education – Education sector needs attention for quality improvement, reducing school-dropouts, programmes for adolescents, etc. In March 2005, students of the Tanaji Malusare School, Dapode, were involved in village development under guidance of their teachers: (a) Fifty-two students from Pabe village participated in essay competition on 'Rural Development in Pabe and my Participation', (b) Village Maps for different Wadies were prepared showing roads, houses, shops, temples, public places, and (c) list of houses with the name of the Head of the Family for each Wadi-Vasti, was prepared.

Books worth about Rs. 2,000/- were donated to Tanaji Malusare Vidhyalaya, for extra-mural reading. Selection was done by the teachers. About 25% of books were for teachers and rest for the students. Promoting habit of reading among children was an important intervention. This subject was discussed with the Head-Master of Tanaji Malusare Vidhyalaya, Dapode, on 23<sup>rd</sup> April 2005. A set of 80 books and many wall charts were specially designed for young children and published by the Indian Institute of Education, Kothrud, Pune. This set was donated by MARDEF to the School. The school identified one of its past-students from Pabe, who has taken responsibility of running a small library at Pabe. The target is the children in primary schools.

Behaviour change training for adolescents in Pabe is given priority. It was hard to get suitable trainers for this task. Six persons, three men and two women who are willing to take the task of training the adolescent boys and girls from the villages were interviewed and instructed by Dr. GA Panse, on 15<sup>th</sup> December 2006. They will try to get 3 to 5 more volunteers and each will make a list of 25 to 30 youths to whom they will engage. These trainers will undergo 30 hour learning spread over five days which will suit the participants. Dr. Panse will make arrangements for teachers, transport, etc., as soon as he gets dates from the volunteers.

(viii) **Behaviour Change Training for Adolescents in Pabe:** Adolescents, age group 11 to 19 years, were the future citizen. Any educational input in this group is expected to provide long term benefits. The object of lifestyle and family-life training was to try to bring about



behaviour change conducive to health promotion and welfare. Dr. GA Panse has good experience in this field and has published a set of books. He had couple of meetings with the villagers who had volunteered to function as trainers. Each was expected to train about 15 to 20 boys and girls from their own wadi/vasti. The programme was finalized by them in meeting with Dr. Panse on 15th January 2007. Accordingly, on 5<sup>th</sup> February 2007, Drs Panse, Deodhar and a team of two trainers from KEM Research Society, who had experience in 'training trainers' in many villages, went to Pabe at 10 am. It was found that only two, Nirmala Hande and one of the volunteers were present. One of the Anganwadi Sevika was to join. By 10-30 am it was reported that other will not be attending. The training programme was canceled and MARDEF team returned to Pune. This was a learning experience. Poor response and lack of interest in development activities was not only limited to the village as a whole, but was true even in case of the individuals who volunteered for community work.

(ix) Income generation innovation – On 23<sup>rd</sup> August Dr. NS Deodhar, Dr. GA Panse, Shri Giri visited the family in Limbar Wadi, who has maintained Emu Farm. They have seven pairs of Emu. Last year they had, on average 30 eggs per season per female Emu. This is satisfactory. Although they were generally satisfied with the economics, they had some residual problems. Dr. Deodhar extended help to arrange for expert consultation. This farm can be a demonstration to others in Pabe. For Emu farming Government loan and subsidies are available. As stated earlier, village did not accept idea of tax on milk sold by Pabe residents to the private cooperatives.

**(F) Evaluation and Conclusions on Pabe experiment:** This study has provided valuable insights into the approach to comprehensive development of a village. One of the major problems is lack of intersectoral cooperation and apathy of government agencies for funding rural development. A major constraint in self-reliance in development is that of providing free or highly subsidized facilities which have corrupted rural leadership & community at large. Decentralization is grossly inadequate and Panchayat Raj Institutions have apathetic leadership, lack of authority and

financial resources. Gram-Sabha does not exist functionally. There is hardly any willingness to contribute or take initiative. Quality is totally neglected and even technical specifications are violated even by the officers. This is evident from the poor quality of construction of Panchayat and School buildings, etc., and construction of latrines. Second important limitation of rural development is apathy, lack of interest and poor participation of the people. Coupled with ineffective gram-panchayat and indifferent attitude of the villagers, makes the dream of rural development a distant feature.

As far the health development, primary public health interventions - such as environmental sanitation & hygiene, developing health consciousness, self-reliance in primary health care, etc. - cannot be fully successful without active participation and initiative by the people. As against this background, personalized & medical related health care is possible provided suitably trained and experienced grass-roots health functionaries are willing to work sincerely and with interest.

With these conclusions from nearly three years of study, Pabe experiment will be closed by end of March 2007. Winding-up will start from 15<sup>th</sup> March 2007. In Varoti village which has shown signs of initiative and sustenance for safe drinking water, study will continue. Village Development Fund will be established with 50 % contribution by the village. Rules and Regulations for operating this fund have been approved.

It is proposed to take more studies on rural development. One or two villages will be selected of rural development on criteria of availability of effective & development oriented local leadership, acceptable functioning of gram-panchayat, and interest of the people in general. This is to study the impact of effective leadership and will to develop. Another hypothesis needs to be tested is that basic limitation of rural development is lack of funds for developmental initiative and programmes. It is proposed to select two villages and provide them seed-money for development. Selection will be on basis on track-record of progress or potential for it, and acceptance of their development plan by MARDEF. Budget estimate will be placed before the Board of Trustees in due course.

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This report was presented to the Board of MARDEF Trustees in meeting held on 21-02-2007.



### 3. Testing Alternative Approaches for Village Development

**Preamble:** Despite national policy and programmes since the first Five-Year-Plan, development of the villages in India has remained a mockery. Progress, if any, is tardy and without much impact. There are some exceptions though, with voluntarism and local entrepreneurship. Micro-projects of some voluntary organizers, e.g., Raj Arole of Jamkhed and Anna Hazare of Raleganj, were successful because of effective village leadership and resource mobilization. However, these have remained as models without up-scaling and incorporation into the system. There is no point in following the beaten path and end in a failure. Experimentation is necessary to test alternative approaches to sustainable development and welfare of rural population. In this regard, some strategies have been tried without much success, viz. (a) multi-sectoral approach for comprehensiveness, (b) integration through trans-disciplinary activities, (c) involvement and active participation of the target population, (d) promoting community organization, (e) empowering Panchayati Raj institutions, (f) community initiative towards self-reliance, (g) supports of science and technology transfer, (h) full utilization of Governmental services and programmes, (i) generating local data-base for decision-making and micro-planning, and so on.

**Hypotheses:** Basic presumptions are: (a) the best resource for development is human, and (b) self-reliance is the key to sustainable development. First hypothesis or approach is to select usual type of village with weak leadership and apathetic villagers. Experiment is to study impact of remaining as a part of Government frame-work for rural development and incorporate the various actions listed earlier. Second hypothesis or approach is to work in selected villages and depend on local leadership and potential participation of the people. People, by and large, know the local problems, resources and possible solutions. Despite ability to mobilize resources, major limitation is adequacy of funds. Experiment is to study impact of availability of 'village development fund' with 50 per cent external matching grant. Fund will be operated by the village within a frame of regulations to ensure appropriateness and cost-effectiveness. Third hypothesis or approach is based on the villagers who have track record of development and ability for micro-planning and

implementation. Experiment is to invite plans from village Panchayats, select appropriate village or two, and provide 'seed-money' to the extent of say, Rs. 1000/- per family or Rs. five to ten lakh per village; and study the impact with due supervision. These three hypotheses or approaches constitute an upward continuum and are designed to cover three types of villages we come across in India.

**Experience:** First hypothesis was tested in Pabe village, Pune District, Maharashtra as a project under (MARDEF) Mahabank Agriculture Research and Rural Development Foundation, Pune, of the Bank of Maharashtra. Study was initiated in June 2004 with neither any grant to the Panchayat nor free medical care to the people. The main endeavour was (a) to help the village to fully benefit from the official developmental schemes, (b) to empower people and Panchayati Raj Institutions, (c) to give scientific and technology support, (d) to improve local organizations by way of training, counselling, income generation, and (e) to guide for economic development, etc. In special instances MARDEF provided limited funding, e.g., honorarium to 'parivartak', supply of books for library, vocational training for self-employment. Offers were made for matching grant for Village Development Fund, grant of loan through the Self-Help Groups, grant for water-shed development provided the villagers enhance income generation of gram-panchayat. These offers were not availed by the villagers.

Full cooperation and full support of experts and agencies working locally was ensured. Dialogue was opened with the villagers through field visits, meetings, group discussions, lectures, demonstrations, etc. Experience since mid-2004 revealed that Pabe village was politically divided, the leadership was weak and not keen on development, and Gram Sabha was apathetic and not assertive. It thus represented a typical test village and worth experimenting with. One of the main reasons for this situation is the policy of the Government to provide free services and subsidies, exemption for repayment of bank loans, etc., which has vitiated mindset & corrupted rural population.

Closing report, 2007, on MARDEF Pabe Pratidarshak Prakalpa, was presented to the Board of Trustees in its meeting held at Lokmangal on 21<sup>st</sup> February 2007. See preceding paper. This



document provides details of the study including major activities and results.

**Varoti Village:** This was selected in June 2005 as a control village because of its better leadership and villagers are better organized and cooperative. This village is about 12 km from Velhe and takes about 45 minutes by car to reach there from Velhe. Village has about 55 families and population of about 500 persons. Main occupation is paddy cultivation; *nachani* and *varai* are also grown. Dairy is another occupation with sale of 260 to 375 litre of milk daily to a private agency. Early in 2005, there was an outbreak of gastroenteritis in a nearby village. As a preventive measure, on 13<sup>th</sup> February 2005, each of the 55 families in the village was provided with water filter by Dynaprobodhini, NGO from Pune. Since then all the families are using the filters and drinking only filtered water. Not only all of these are still in use, but the village has maintained family-wise record of filter use, any illness (symptoms and diagnosis),

etc. The record were examined and confirmed. This has resulted in significant drop in illness of the community. On 16<sup>th</sup> December 2005 all the filter beds were replaced. Full acceptance was evident not only because of spontaneous replacement, but also payment by the villagers for new 'filter' unit. People have developed taste of filtered water and desire no change. Village provided free labour for blasting a reservoir for storing rain water. In marked contrast with other villages, Varoti village houses have dug twin pits for latrine. Construction is delayed because inadequacy of water.

In its endeavour for development, Varoti villagers (women groups) have decided to collect Rs. one lakh to contribute to 'Gram Vikas Fund'. If various criteria were satisfied, Varoti village was to be selected for testing second hypothesis. However, MARDEF did not receive their proposal.

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This note was circulated to: (1) the Board of MARDEF Trustees, (2) Shri. Nanda, Population Foundation of India, New Delhi, and (3) Shri. Sohoni of BAIF, Pune.



## **Part J**

# **Social Sciences and Societal Topics**







# 1 Changing Strategies and Challenges in Communication in Health Development in India

**Introduction:** It is only recently that human beings are talking about information technology. However, in the process of initiation and development of life-forms the nature, with its self-contained science and technology base, has perfected communication technology – both hardware and software aspects. The efficiency is remarkable : (a) extending over the entire process of information gathering through sensory mechanisms ; (b) judging its utility by screening quality of data in terms of relevance, reliability, accuracy, timeliness, etc. ; (c) critically analyzing and storing it; (d) net-working and cross-checking the new data and information with the stored data base ; (e) the past experience and lessons learnt are retrieved from the memory; (f) organizing the information; and (g) developing afferent channels for transferring the information in a programmed sequence and timing so as to initiate actions which are predetermined and performance also pre-designed. Even the probable adversities are anticipated and mid-term corrections are built-in. the end is further addition and enrichment of data-base of knowledge, experience, wisdom and skills. This is an endless process. Communication is a vital characteristic of all forms of life from the viruses having relatively simple mechanisms at one end of the spectrum and to the highly developed psycho-neurological mechanisms of human brain and nervous system.

The term communication which is used in this chapter, means a mechanisms by which given set of information, knowledge, technique, skills, etc., is transferred effectively from an appropriate source (animate or inanimate) to the recipients (individual, group or community) in such a manner that the message is received and learnt correctly and resulting in response such as predetermined action or performance, or change in action or behaviors or lifestyle. The history of human development dates back to about two million years. However, it is during the last two centuries of industrial revolution, and scientific and technological advancement that the subject of communication is gaining importance and attention. Can we take lessons and do what the nature has done? How we do it?

Several programmes for socio-economic development for welfare of the people have been launched, one of the objectives being health development and improved quality of life. Success and sustenance of such planned development depend largely on the active participation of the people for whom the programmes are intended. In final analysis, every development rests on the human resource. With limited financial allocation, the question of cost-benefit and cost-effectiveness always crops up. Unfortunately, in India performance of most of the national health programmes has been far from satisfactory. In practice, involvement and participation of the people was at the minimum. Nevertheless, problems such as population growth and disease burden were to be addressed urgently. It is in this context that communication was accorded high priority by the Government of India. It is interesting to review what was done and what happened. It is with this background that the evolution of communication in health development will be considered in this chapter.

**Practice of Public Health:** It is strange that in event of unsatisfactory performance or failure to meet 'targets', our health administrators fail to examine and study the causes of shortcoming and rectify them or seek for alternative approaches. In most of the instances, all that they did was to just change the name/title of the programme without revising strategies and interventions, etc. Even the international agencies have fallen in this trap. Family Planning was progressively renamed as Family Welfare, and Reproductive and Child Health Programme. Classical Maternal and Child Health (MCH) also received similar dressings. Communication was equated to health education and then to IEC (Information, Education and Communication) during the last decade. The beaten path was followed without assessing the impact. The efforts of health education were half-hearted and remained confined to different disease control and family welfare programmes. There was neither talk of integration nor any dialogue with the Education Ministry. Not satisfied with the result of the interventions, various approaches and strategies



were tried to involve people ad ensure active participation. It was a process of trial and error. There was not much of success.

**Story of Communication Agenda:** Community Development Programme was launched in the First Five-Year-Plan. Health development was one of its components. In this task Primary Health Centre was to play a pivotal role. Health education was one of the functions assigned even to this early set-up. With the lessons learnt during last fifty years, both nationally and internationally, the current talk is about communication for behavioral change. The programme of democratic decentralization and empowerment of Panchayati Raj Institutions (PRIs) has been introduced. Early results in some States are positive and encouraging. Correct recipe for effective communication seems to be eluding even the experts.

**The Chain of Events and Strategies:**

**1. Community Development Programme:** General education including social education and adult education were an integral part of the activities under this early programme for developing a welfare society. The Primary Health Centre (PHC) was charged with the responsibility of providing integrated medical and public health

services including health and nutrition education, to the people. Not only the medical Officer in charge of the PHC was expected to use every opportunity for a little judicious health education, but health education was the duty of all the field staff of PHC. Though the vertical programmes for control of communicable diseases could achieve some success initially, the health services in general failed to create community awareness of the health needs and to mobilize public opinion and action for improvement of health status. Why these early health education programmes failed? It seems that we had no insight into the complexities and ways of communication then. The center of attention was the methods without consideration of the outcome, e.g., evaluation indicators used were number of poster or messages on the road, number of meetings etc. Education was not the priority of the politicians and administrators. To illustrate, although universal primary education is mandatory under the Constitution of India, this has not been done till today. In retrospect, the congruence between the functions stipulated for the PHC and the cardinal elements of Primary Health Care is strange and surprising high (Table 1). The time lag between these two is over three decades. This testifies the oft quoted statement that we in India are good planners but poor implementers.

**Table 1:** *Functions of Primary Health Centre and Eight elements of Primary Health Care*

Function of Primary Health Centre	Nine elements of Primary health Care
1. Medical care	1. Elementary care and appropriate treatment of common diseases and injuries
2. Control of Communicable Diseases	2.Provision of essential drugs
3. Sanitation especially provision of safe water and sanitary disposal of excreta	3. Adequate food and proper nutrition
4. Maternal and Child Health Services	4. Prevention and control of locally endemic Diseases
5. School Health	5. Immunization against major communicable Disease
6. Vital Statistics	6. Safe and adequate water supply and basic sanitation, sanitary disposal of excreta and refuse and housing
7. Health Education	7. Health care of mothers and children including family welfare
	8. Health Education effective communication and self-reliance

**2. Health Education:** After eradication of small-pox and diminishing returns of various vertical disease control programmes, basic services were introduced. Grass-roots staff was pooled and integrated into the Basic Health Workers (BHWs) – the forerunners of multipurpose workers. With

adoption of the Multipurpose Workers Scheme, Health Education function was revived. Central Health Education Bureau was established in Delhi under the Ministry of Health and Family Welfare. Then came the State Bureaus, new cadre of Health Educators was established and the Block Extension



Educators were appointed. Preparation and distribution of health education materials got the priority. Most of the health education material was in English and very little in the local languages. Mass media were extensively used. Attempts such as holding village meetings were made to introduce two-way interpersonal communication. Yet the outcome was not satisfactory. Involvement and participation of the people was not materialized for all practical purposes.

**3. Information, Education & Communication (IEC):** Initially, Family Planning Programme was started by establishing Family Planning Clinics. This approach failed to attract the people. Therefore, Extension Approach was introduced and Family Planning Workers (or Motivators in Maharashtra) were appointed for communicating the message to the people and providing services. However, it was hard to motivate the people to adopt family planning methods – vasectomy in those days – and the set targets could not be reached in spite of all kinds of incentives offered to the people. The Government Departments then progressively resorted to coercion. The results were disastrous and the then Government lost its power. The new Government changed the name of the programme to that of Family Welfare Programme. However, it took years before the topics such as small family norm, etc., were talked about. In order to take the people along, health education received another booster. By now the term health education was no more fashionable and got lost in the history. The targets were dropped (in practice only on paper). Communication experts coined a new word and new strategy, viz. IEC (Information, Education and Communication). Electronic media and modern communication and education technology were put into the gear. Though impressive, this paraphrasing of terminology has not made any difference. The activities have remained the same old wine, but in a new bottle.

**4. Community Cooperation:** After initial success, most of the national programmes for the control / eradication of communicable diseases failed to give desired performance. The case-holding and the percentage of the patients of leprosy and tuberculosis completing treatment were poor. Voluntary reporting of new cases was very low. Drop-out rates under the Universal Immunization Programme and school enrollment were alarmingly high. Utilization of the promotive services such as MCH and other available assistance was poor. In the early stages of Malaria Control operations, people welcomed and

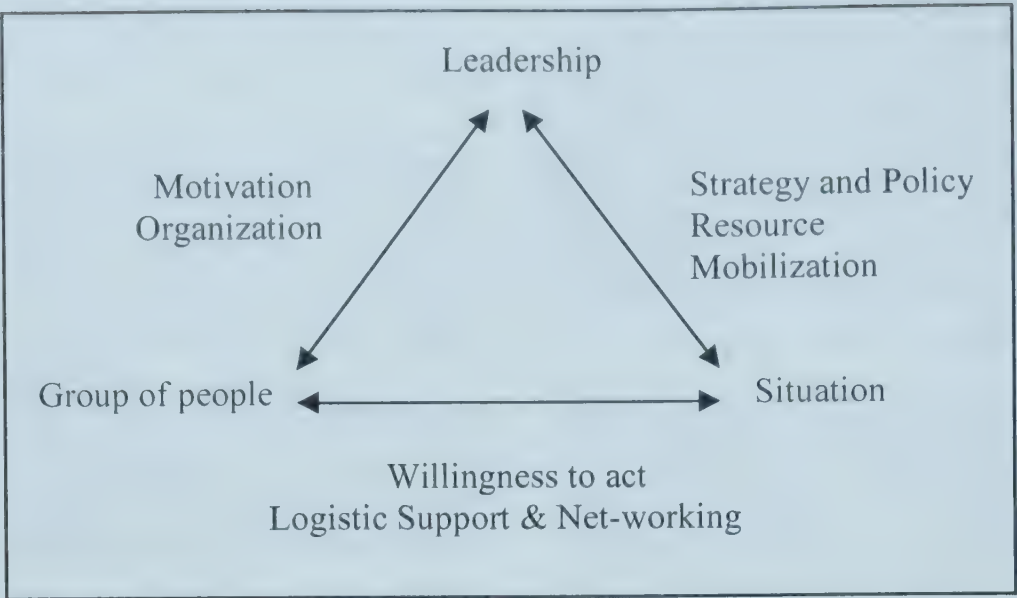
cooperated for getting their houses sprayed with DDT emulsion although the spraying used to result in defacing the walls, etc., with DDT deposits. However, as soon as the bed-bugs got eradicated, this cooperation vanished although the new insecticides were soluble without leaving any trace on the walls. With such experience and situations many vertical disease control and eradication programmes designed various communication strategies and deployed extra field staff with the aim of securing involvement and active participation of the people. In some programmes such as for the prevention of iodine deficiency disorders, legal provisions were made to ensure that non-iodized salts are not available.

**5. Social Mobilization:** Global strategy, drafted in mid 1980's by the World Health Organization, for Health For All by the year 2000 recognized the need for Health Behaviour Research. This originated because of the feeling that non-and underutilization of the available health services facilities was due to the factors related to social behaviour and mobilization. Service of social scientists & anthropologists were sought. However, this was mostly the problem identification exercise, eluding solution. Social mobilization depends on proper social actions and solution lies in their appropriateness. The basic elements of social action are: (a) Leadership, (b) Group of people, and (c) Situation. These elements are interrelated and interdependent as shown in figure I.

Perspectives of the people, especially of those who are poor or underprivileged are the key-issues. What the people think? Why they think so? Such are the matters that need consideration. Meaningful relationship between the people and the health programmes has to be developed. One of the factors on which effective communication and community action depends is personal attributes such as ability to captivate and to win over. This is why the leaders such as Dr. Raj Arole and other leading volunteers who undertake micro-projects are able to win and get active involvement and participation of the people, e.g., Comprehensive Health Development Project, Jhamkhed. Health culture is pluralistic and communication technology has to match it. Social reformers and some politicians have effectively brought about social mobilization. What was the process? Slogan like 'Bharat Mahan', appearing on several trucks on the road and new slogan 'India Shining' have produced entirely different impacts. What are the lessons and what more to learn and understand about communication technology and its transfer?



Figure 1: Elements of Social Action



**6. Empowerment of People:** With the advent of Health For All through Primary Health Care approach, a new ear was opened. Health care facilities were to be developed and arranged around the life patterns of the population. Decentralization was considered as an essential prerequisite to fulfill local needs to of the community. Multisectoral cooperation and collaboration were the key factors. Manifold and multidirectional solutions were required. The vulnerable and needy groups were to be given special attention to ensure equity and accessibility. And not the least, community participation was considered as indispensable for the success. Thus, it was imperative to empower the people and organize the community, especially the vulnerable and needy groups, so that it can truly participate. Concrete inputs to empower people were more comprehensive, viz. IEC, income generation and authority. Full political bureaucratic support, will and pledge were identified as vital prerequisites.

Major shift in the focus was from the means to the effect and impact: i.e., from single tract 'education' to multi-pronged comprehensive approach to empower people. One of the major strategies was decentralization from the Central and State Government to Panchayati Raj Institutions (PRIs) and Nagarpalikas – the local self – governments. Promotion of Self-Help Groups of the women in villages have organized, activated and empowered village women. This has resulted in many places, development of confidence among them, initiated economic activity and income-generation, and participation in political and development activities, etc. There are instances in Maharashtra villages where the interest & initiative taken by the villagers have resulted in successful implementation of the schemes such as water supply and sanitation, water

shed development, etc. Local leadership is also emerging. In brief, wherever decentralization has taken place and to the extent it has taken place, the results are evident (Table 2).

In a traditional society as ours, characteristic difference between 'Bhartiya' and 'Indians' has to be realized. People will readily accept technology, mostly blindly, but may not go along with its scientific background or basis. Injection may be accepted, but without understanding of immunization or preventive aspect. Water is demanded but not its safety and prevention of water-borne diseases. It is in this regard, the broad-based approach such as of the primary health care, is of great significance. Empowering people is truly the issue of human resource development. We have failed in meeting the target of Health for All by the year 2000 because of not understanding the concept of primary health care and failure to develop insight into the implications. Intersectoral collaboration and cooperation were neglected; trans-departmental programmes and activities were even not initiated by the Governments. Communication is and has to be a continuous activity. This has never occurred in heath education which has unfortunately remained tightly locked in the Health Ministries and Departments. People come in contact with the Health or Medical Institutions only during short periods of illness or promotional activities such as immunization or care of mothers and children. On the other hand a vast majority of school children are available for least eight hours a day and five to six days a week. They are attentive and getting educated and trained for personality development and becoming productive citizen. Health is not taught in any significant extent and manner in the schools. In fact there is retrograde reform of dropping the subject of physiology and Hygiene



which was once a compulsory subject in school curriculum.

Despite the necessary ingredients and high potential for effective communication, the process of empowerment of the people has been very tardy and measures inadequate. People are not aware of the purpose behind the constitutional amendment for empowering PRI's. So far despite

communication there has been neither appropriate change in the behaviour of the bureaucratic and political systems nor any pressure developed by the grassroots people. In general bureaucratic administrations are reluctant to transfer adequate power and authority to the PRI's. The process is also not uniform in different States. However, 'self-reliance' is the expression of end point objective. Nation has to continue on this path.

**Table 2:** Rural Health Indicators in Selected States by Extent of Empowerment of Panchayati Raj System in selected states in India

State Categories	CBR	CDR	IMR	EL	TFR	P<15	LR
<b>With Empowered PRI,s</b>							
Maharashtra	20.5	8.3	52	65.3	2.9	35.2	77.3
Tamil Nadu	19.1	8.6	50	65.2	2.1	28.8	73.5
Gujarat	26.5	8.3	68	61.5	3.3	33.7	70.0
Andhra Pradesh	21.0	8.8	71	61.6	2.6	33.6	70.9
Karnataka	23.4	7.8	65	61.7	2.6	32.4	67.0
West Bengal	22.5	6.8	52	64.5	2.9	35.5	69.2
Average for India	26.6	8.7	69	62.4	3.5	37.0	65.4
<b>With disabled PRI,s</b>							
Uttar Pradesh	32.6	10.2	83	61.2	4.8	40.8	57.4
Madhya Pradesh	32.2	10.4	90	56.8	4.1	39.2	64.1
Rajasthan	31.9	8.0	81	60.3	4.4	39.0	61.0
Bihar	31.8	8.2	62	63.6	4.5	41.3	47.5
Orissa	23.6	10.3	91	58.5	3.0	34.7	63.6
Assam	27.5	9.6	73	57.3	3.4	38.6	64.3

Source of Data : Foundation for Research in Health System (2203), Health Monitor, Ahemdabad, Sample Registration System Bulletin, Volume 37(2), October 2003.

Health Information of India, 97-98. Min. H&FW, GOI, and Rajya Sabha Unstarred Question No. 371, 04-03-2002.

Note : CBR = Crude Birth Rate, Rural 2002  
IMR = Infant Mortality Rate, Rural 2002  
EL = Expectation of Life at Birth, 1996-2001, estimates  
P<15 = Percentage of Population below 15 Years of Age, rural, 1998.  
CDR = Crude Death Rate, Rural 2002  
TFR = Total Fertility Rate, 1998. Lowest of 1.8 in Kerala  
LR = Literacy Rate, Persons, 2001.

**7. Communication for Behavioural Change** It is universal experience that information, knowledge, training or education per se do not necessarily result in appropriate or expected change in human behaviour. There are several personal, cultural and traditional, situational and circumstan-tial, and other factors influencing behaviour. Further, behaviour may take different and very diverse forms and may change over time and situation. With this realization, recently IEC strategy has been changed to CBC (Communication for Behavioural change). This makes the objective more explicit. However, our knowledge of behaviour is very incomplete. How do the rumors spread so effectively and people act on the

information? The rumors such as God Ganpati's idol drinking milk or of Hanuman sweating got widely spread not only all over India but also far of in U.S.A. Negative health habits such as use of tobacco and alcoholic drinks are highly contagious, but it is hard to inculcate positive health behaviours such as exercise, regularity and moderation, lifestyle changes, or giving up smoking. How these adversities get communicated so well, easily and rapidly? Why we are not researching? "Tonics" are very popular although none of them have scientific justification. Nevertheless even the qualified doctors and consultants prescribe them. Many doctors do smoke despite the knowledge of the harm; they also consume antibiotics when they



themselves get common cold. Failures of communication are plenty. Can we learn more about why and how of the failures?

**8. Faith, Culture, Belief and Traditions:** All these exist because of communication; and are good instances of strong and lasting behaviours. Faith is the trust or unquestioning confidence, strong belief especially religious doctrines, etc. Culture is the state of trained and refined state of understanding and manners and tastes. Belief is trust, confidence or acceptance of received theology or of things as true or existing. Tradition is opinion or belief or custom handed down from one generation to another especially orally, based on usage or experience. These are then the ultimate end points where health education mission should reach and get institutionalized in the society.

There is another interesting aspect of communication. Communicating information and scientific facts to the common people and 'uneducated' is relatively simple and often very effective in hands of some individuals. However, to educate and to inform effectively the 'educated' is a very hard task. We talk of stigma, say in case of leprosy. With full scientific and epidemiological knowledge about leprosy, almost all doctors will not thoroughly examine (may not even touch) a person either suffering from leprosy or suspected of having it. This is true even in the case of the cured leprosy patients. Doctors have dismissed even cured person from employment. There are four types of people: (a) Literate and educated, (b) Literate but un-educated [many professionals fall in this group] (c) Illiterate and uneducated and (d) Illiterate but educated [these are the wise villagers]. It is hard, often impossible, for the category (b) type of persons to learn new things; relatively easy for category (c) people, say in the villages; and category (a) and (d) are the people who learn when properly informed. It is hard to undo wrong things once learnt and substitute them with the 'right' ones. Repetition is one way in which communication can be reinforced; it is probably an effective eraser of memory.

Some social reformists are concerned about the blind faith many poor people have. The fact that faith provides assurance and relief to many of the unprivileged people is undeniable. Exploitation of the faith the poor have in something for monetary or some selfish motive amounts to cheating; and this should be curbed. However, most of the instances such as offering 'vibhuti', etc., are provided free and without any ulterior motive. On

the other hand many educated people and scientists have strong and blind faith in science. Any thing such as a new device or product like drug is accepted without questioning, anything that costs more is considered as superior. Blind faith in science is worse than the faith the poor people have say in 'God'.

By-and-large the blind faith of the poor is harmless. However, the blind faith in science is often harmful to the society. Miracles are not uncommon in medicine. Patients with advanced cancer have not only survived but the cancer indeed regressed completely. There are case studies to confirm the facts and provide unequivocal evidence of faith operating as the causative factor. Most of the miracles cannot be explained by science, but they are real; the fact is that science and its methods are not yet developed adequately. It is noteworthy that the damage done by blind faith in science and technology, without unequivocal evidence, is plenty. The example of the wide spread use of tonics has been already quoted. Medicines such as the antibiotics and hormones are mostly misused than used. The most damaging is the recent advocacy of the use of condom as a public health measure for the prevention and control of new venereal infectious disease AIDS and HIV infection. Worse is that this is being done with total disregard to the well established cultural, ethical and traditional social base. Apart from the ethical and morality values prevalent in India, this societal issues are best illustrated {especially for those who believe in the Western culture blindly} by the American Adolescent Family Life Act of 1981. This USA Act focuses on developing programme that promotes abstinence as the only option to help young people avoid STDs and teen pregnancies. The authors have reproduced Title V "abstinence until marriage only" standard: "Abstinence education" means and educational or motivational programme which – (a) has as its exclusive purpose, teaching the social, psychological, and health gains to be realized by abstaining from sexual activity; (b) teaches abstinence from sexual activity outside marriage as the expected standard for all school age children; (c) teaches that abstinence from sexual activity is the only certain way to avoid out-of-wedlock pregnancy, sexually transmitted diseases, and other associated health problems; (d) teaches that a mutually faithful monogamous relationship in context of marriage is the expected standard of human sex activity; (e) teaches that sexual activity outside of the context of marriage is likely to have harmful psychological and physical effects; (f) teaches that bearing



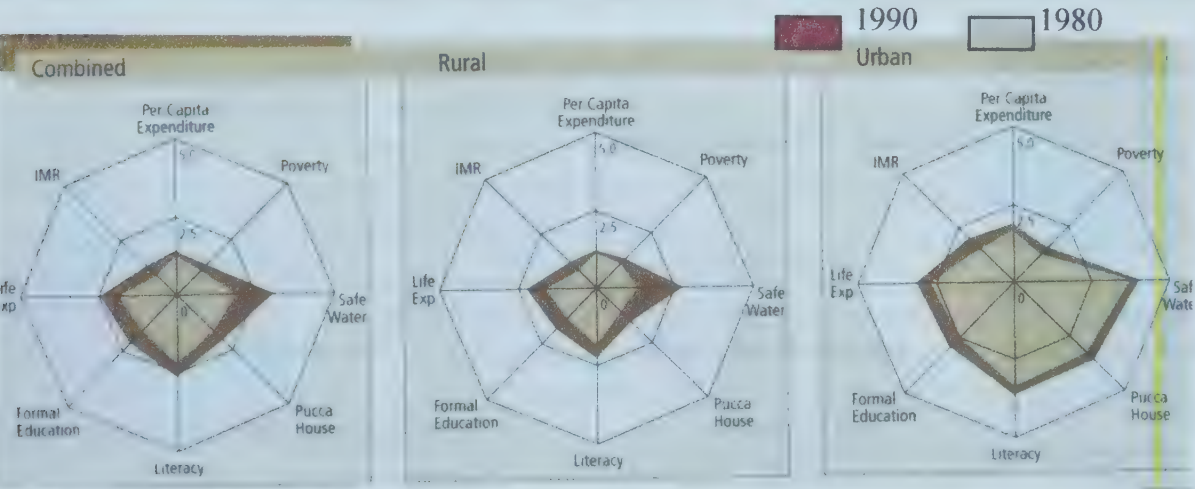
children out-of-wedlock is likely to have harmful consequences for the child, the child's parents, and society; (g) teaches young people how to reject advances and how alcohol and drug use increases vulnerability to sexual advances; and (h) teaches the importance of attaining self-sufficiency before engaging in sexual activity.

Are not these guidelines also truly Indian or for the matter global? It is here that cultural, religious, ethical, moral, psychological, and other subtle aspects of human value system takes over science and technology. These philosophical aspects should be recognized and considered while planning communication strategies.

**9. Developmental Spiral:** The communication cycle is now tending to complete the circuit. The progress, owing to the developmental inputs result in better resources, and when these are ploughed back leads to further development like a spiral. Comprehensive Socio-economic Development with overt benefits, itself acts as a natural

communication tool. Thus, development strengthens communication fabric in many ways. The resulting learning progressively builds an enlighten community. Lopsided development such as in tertiary health care sends wrong signals, so also inaccurate information and half-knowledge leading to fear complex (as in the case of HIV / AIDS and Rabies). Behavioural change should be positive and not based purely on perceived danger. Another type of communication is in the form of pressure (against national interest) from the international agencies. In this case the communication is economically weighted and the Health Administration behaves as if purchased, e.g., the Pulse Polio Programme and the Revised Anti-Tuberculosis Control Programme which are epidemiologically unsound and socially not feasible. True behaviour change is reflected in the developmental performance. This is best illustrated by the Human Development Radars as computed by the Planning Commission (Diagram I and II). There are hardly any urban-rural differences in Kerala, while the same are very high in Bihar.

Diagram I: Human Development Radar \_ Kerala



There is hardly any different between the urban and rural development.

Diagram II: Human Development Radar – Bihar



There is very marked difference between the urban and rural development

**10. Communication, Science and Spirituality:** Modern ways of life and communication

technology has produced comforts. Science and technology have, however, promoted materialism,



and made life artificial and away from the nature. Ecological disturbance and imbalance is causing mental stress & psychological problems. Therefore, some people have started looking back to the traditional societies and spirituality. Green movement is taking roots in countries such as Germany, France, Italy, UK and USA. The aim is on voluntary simplicity and ‘downsizing’ of lifestyles. Our lesson should be to hold on to our simplicity. Science and technology should go hand-in-hand with spirituality.

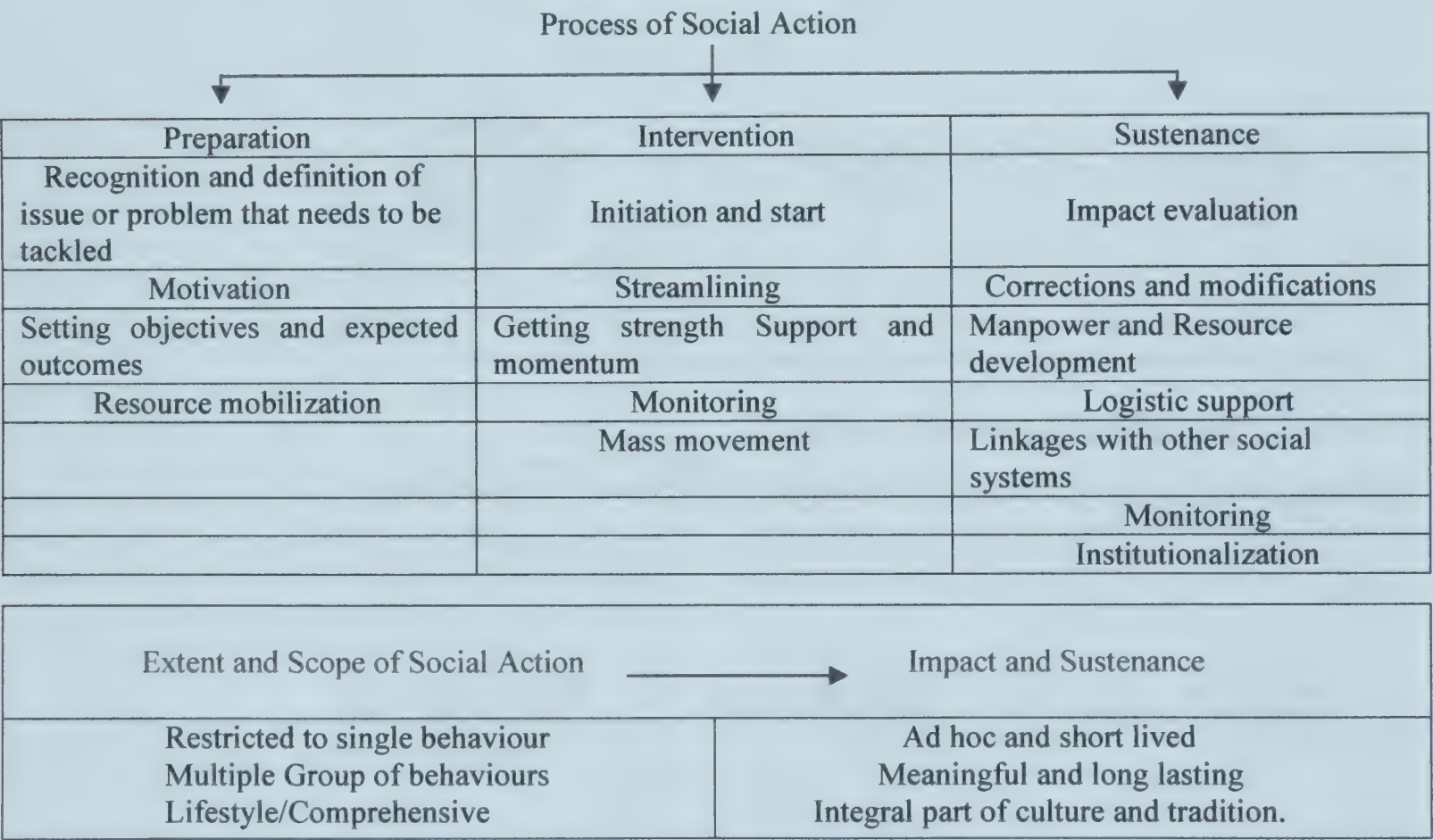
**11. Ways out :** Health Education is defined as a process of learning that is required to bring about a change in the behaviour and actions, i.e., way of life, of the people so that they can actively participate in the measures for promotion, maintenance or restoration of their health. In practice, our health system has kept this definition lyophilized. What lessons can we draw from the foregoing treatise which indicates some of the probable causes of failures and shortcomings? All the health scientists and managers have to take this exercise. It is imperative that the success stories of the voluntary organizations and voluntary reformers

should be studied, understood and insights developed for application at properly selected locations and situation.

If the objective of empowering people and making them self-reliant is for promoting and assisting social actions for health development, there is urgent need to learn more about social action. The process of social action consists of three phases, viz. Preparation, Intervention & Sustenance (figure II). The major factors on which social action depends include the following:

- 1. Nature and magnitude of situation or issue or the problem, place and time.
- 2. Characteristics of the people, socio-economic conditions, culture, and other attributes.
- 3. Leadership types, qualities and effectiveness.
- 4. Motivation, commitment, training, and organization.
- 5. Strategy, policy, resource mobilization and management.
- 6. Willingness to act, logistic supports, team-work, etc.
- 7. Political system and situation.

**Figure II: Process of Social Action**



Preparation generally starts with recognition and definition of problem or issue that needs to be tackled. Other items include organization, resource mobilization, setting objectives and expected outcomes. Intervention is the main process formed

by initiation or start, development of critical mass, streamlining, getting strength and momentum, mass movement, monitoring, etc. Sustenance is an important factor and consists of impact evaluation, correction and modification, manpower and



resource development, logistics, linkage with other social systems, monitoring and institutionalization. The four phases of social action are elaborated below:

*Preparatory Phase* – It includes recognition and definition of problem or issue or a situation that need t be tackled. Situational analysis is important in this regard. This should lead to motivation and decision to react. Policy and strategies are to be formulated. Objectives are to be set and expected outcome has to be agreed upon. Accordingly people are to be organized and trained, and resources are mobilized. Information, communication and training are the cardinal factors for mobilization and motivation of the people. Plan for action has to be prepared.

*Intervention Phase* – Actions are initiated as prearranged. It may be a big assault with a bang, or gathers momentum and impetus till a critical mass develops. Streamlining and mid-term assessment and corrections may be necessary. Depending on objectives, the actions continue till sufficient strength is acquired. Mass movement may be desired. Continuous review and monitoring are necessary.

Effective leadership is one of the key factors. A vital element of human resource is the local community organizers. Without this element, the target population, our human resource cannot be activated to function. In industries, labour organizations have demonstrated what can be achieved by the organized sector of the society. If the people, the “have-nots”, could be so organized, social action can take place in favour of health and development. The task of health promotion and improving the quality of life will be much easy. The success stories of many individuals and NGOs can be attributed to cultivating & engaging local community organizers. Experiences of some leaders are published in the World Health Forum, volume nine, number two. These are very revealing and useful guides. It is essential to develop a programme for promoting leadership in health.

*Sustenance Phase* – Impact evaluation is important. Corrections / modifications are to be accomplished. The objectives may change and new plans may be necessary. Long term human resource development, further development and mobilization of resources, logistics and linkages with other social systems or

communities may be required. Social action may become a part of life, a tradition or a cultural characteristic. Most critical input in this regard is availability of the community organizers who take initiative, organize people and ensure continued individual and social actions in favour of health development and human welfare.

The process of social change may not, however, follow the above sequence, and the importance or priority that any of the constituents may vary from people to people, situations and time to time. It is also important to note the relationship between the extent and scope of social action vis-à-vis its impact and sustenance. If social action is restricted to a single behaviour, impact will be restricted. But if the social action is directed to multiple or groups of behavior, the effect is likely to be pronounced and lasting. The ultimate goal of any social action/actions should be to bring about a change in the lifestyle that is conducive to health – that promotes positive health behaviour. Figure II.

Evaluation of education and communication is not easy and there are many pitfalls. Short – term or immediate effects in terms of knowledge and attitudes are measurable. However, the question as to the ultimate impact of this on beaviour remains unanswered. Further, information and knowledge once gained, may be used at any time later during the life, and provided the memory is retrieved at appropriate time and situation.

**Summation:** (1) Health education should be taken seriously as its defined. (2) Education is not just teaching and methods; it is learning. (3) Communication is a life process and effective learning related to situations. (4) Behaviour is determined by lesson learnt from experience, knowledge and communication. (5) Self-reliance in health demands focused and sustained activities on the improvement of health attitudes and behaviour in individual, groups, and community as a whole. (6) The interventions and programmes for sustained community involvement, participation and initiative should be broad based and comprehensive with an objective of human resource development. It is the substantial issue of empowerment of the people and organizing them. It cannot be fragmented or compartmentalized for single or narrow purposes.

All these are the challenges which need to be taken up rather earnestly and squarely.







## **Part K**

# **Administration and Management**







# 1. Evoking Primary Health Care Approach through Horizontal Decentralization and Panchayati Raj System

**Introduction:** The later half the twentieth century, we in India have witnessed the impact of political independence, population explosion, industrialia-tion and urbanization, and swift socioeconomic development resulting in scientific & technological progress, and improved quality of life of the people in general. From a situation of misery and decay, the achievements in health development were tremendous. The pace was stepped up considerably with the national commitment *Alma Ata* declaration. Health infrastructure and manpower were strengthened and highly potential schemes, viz. Multipurpose Health Workers' and Community Health Workers' were launched for providing 'Health For All' through primary health care approach. Commendable improvement which took place cannot be underrated.<sup>1</sup> Health profile in

India improved considerably. A single indicator is the increase in expectation of life at birth from 32.1 years (1941-51) to 62.4 years (1996-2001)<sup>2</sup>.

Notwithstanding this and despite good intentions and genuine efforts, we could not reach the expected level of health development. The basic health services still remain inaccessible to many vulnerable and underprivileged groups of people. The state of public health system is precarious. Even the poor are not satisfied with the health services delivery. The targets set for health for all by 2,000 AD are not realized. The progress of special programmes for the remote and backward areas, and underprivileged and poor people is not satisfactory. Inter- and intrastate and regional diversities and disparities are staggering (Table 1).

**Table 1:** *Health Indicators and the Variations*

Indicator	1940s	2002	Interstate Variations	
			High	Low
Birth Rate * (per 1000 population)	39. 9	25.0	30. 9 (Bihar}	16. 8 (Kerala)
Death Rate * (per 1000 population)	27. 4	8. 1	9. 8 (Orissa)	6. 4 (Kerala)
I.M.R. * (per 1000 Live Births)	134	64	87 (Orissa)	10 (Kerala)
Exp. of Life <sup>0</sup>	32. 1	60. 7 (1992-95)	73. 1 (Kerala)	55. 2 (M.P.)
MMR (per 1000 Births)	20. 2	4. 08 (1997)	7. 07 (U.P.)	0. 09 (Gujarat)
Literacy Rate %	35. 0	62. 0 (1997)	93. 3 (Kerala)	49. 0 (Bihar)

\* Provisional: SRS Bulletin, 37(2), October 2003, Registrar General, India, New Delhi.

This situation constitutes a very complex problem because of the historical, political, cultural, socioeconomic, and management aspects and ramifications. Poverty is yet to be realized as a primary health problem, despite clear evidence

(Table 2). The social system helps the poor in distress, but does little to nurture them as productive and creative beings so that they are able to move upwards in the society with their own initiative and efforts. Under these circumstances,



various Committees and Commissions of the Government of India, Voluntary Organizations and National Institutes, Independent Commission on Health in India, and the World Health Organization (SEARO) have deliberated on why the status of public health system and primary health care was not up to the expectation and what went wrong.<sup>3</sup> Significant outcomes are many. Attention was drawn to the concept of new public health recognizing the intrinsic connection between health

and poverty in individuals, and health and development in nations.<sup>4</sup> Public health has to deal with issues that fell outside the traditional concern of the health sector. Attention was also drawn to the possible negative impact of globalization.

Many documents provide insight, critical analyses, suggestions, recommendations, plan of actions, etc., and are freely used in this endeavour to develop a roadmap for Health For All in India.

**Table 2:** *India 1992-93, Health, Nutrition and Population by Socio-economic Status*  
(Sample size = 5,00,755)

Indicator	Socioeconomic Status		
	Poorest	Richest	Average
IMR/1000 births	109.2	44.0	86.3
U5MR/1000 births	154.7	54.3	118.8
Total Fertility Rate	4.1	2.1	3.4
Age Specific Fertility Rate per 1000 women, (15-19 yr.)	135	45	116
Immunization Coverage			
- For all vaccines, %	17.1	65.0	35.4
- Not immunized at all, %	48.4	7.9	30.0
Delivery Attended by a Trained Person, %	11.9	78.7	34.3
Use of Contraceptives by Married Women, %	24.9	50.6	36.5

Source: Country Reports on Health, Nutrition, Population Status and Service Use among Poor and Rich, World Bank, HNP, May 2000.

Note: IMR = Infant Mortality Rate. U5MR = Under Five Mortality Rate (of children)

We missed the road to Health For All by 2000 AD. A critical failure was inability to grasp and fully appreciate the precise meaning, scope and implications of the term primary health care, even by high level administrators, technocrats and planners in India.<sup>5</sup> Despite successful demonstration of alternative approaches for delivery of comprehensive health care to the poor by some voluntary organizations, the Government simply misbranded existing substandard ‘medical services’ as ‘primary health care’ and tried to extend those to some remote areas and urban slums.<sup>5</sup>

We have to meet a big challenge. What is necessary is to strengthen public health system as a whole; and for this to take place the politicians, policy makers, executives and voluntary organizations should be convinced about it, and

willing to act appropriately. The weak or moribund system will not become strong by chance; strengthening of public health system demands deliberate and persistent efforts on the part of all of us. Therefore, it is essential to explicitly take cognizance of some basic information on public health so that one can have necessary insight and clarity.

**What is Public Health System, it’s Boundaries?**

System is an arrangement and set of inter-relationships among multiple components functioning as a whole. Public health system is a social system consisting of mechanisms and organized efforts of a society or nation to protect, promote and restore the people’s health. Its three major components are: (a) Organizations such as Ministry, Department, Executive Directorate,



Educational and Research institutions, Service Delivery institutions such as health manpower, health care infrastructure, hospitals, etc. Different institutions have a mixed distribution and belong to either the governmental, public, corporate or private sector. (b) Management of all constituent organizations to make them function effectively, efficiently and collaboratively so as to achieve the aims and objectives of the system. Health management consists of systematic planning, programming, implementing, monitoring and evaluating, and redesigning and upgrading in order to meet the ever changing and dynamic health status and challenges. (c) The people for whose health and welfare the system exists and expected to work. Because of its unique characteristics and holistic nature, public health system also has inevitable interrelationship with other social, economic and political systems.

**Basic Requirements of Public Health Care:** The minimum expectation from public health care is ‘freedom from epidemics’. Secondly, in public health practice what is important is not what has

been achieved, but what remains to be done.

Health Care’ is often and ordinarily confused and wrongly equated with ‘Medical Care or Cure’. In the Western and other developed countries, safe drinking water is available at all places to all people, sanitary disposal of excreta and other wastes is universal, food is plenty and wholesome, homes and workplaces are pollution-free and safe, harmful pests and insects are controlled, and people are better off. In brief, all basic public health needs are fulfilled. Their residual health problem is medical care and its high cost; thus for them “health” means “medical care”. This is not at all true for us in India. See Table 3. Therefore, we cannot ignore environmental sanitation, hygiene, etc., the prerequisites of public health. It is injustice and harm to the most of our citizens to follow and promote the Western sophisticated medical care blindly. It is certain that medical care *per se* cannot help common people and the poor to improve their status of health. For health promotion adequately strong public health system and healthful environment are imperative.

**Table 3:** Status of basic health determinants of health in the Western countries and India

Determinants of Health	Western Countries	Bharat/India
Safe and adequate water supply	Universal	Poor
Sanitary disposal of excreta and all other wastes	Universal	Bad
Home and Occupation in pollution-free surroundings	Good	Dismal
Adequate food supply	Excellent	O.K.
Capacity to purchase food	Excellent	Poor
Food and Personal Hygiene	Good	Bad
Education	High level	Low
Social and Economic justice	O.K.	Poor
Medical and allied services	Present priority High cost	Top priority to medical care, neglecting health

Health status of people is determined by healthy environment, adequate nutrition and lifestyle conducive to health. Unfortunately, our so-called ‘health services’ fail to contribute much to any of these basic factors, but essentially provide curative medical care. Even the medical care is of poor quality and neither adequate nor satisfactory. The following are some important functions which should be performed effectively by the public

health services. Its target should be comprehensive health development.

- (i) Control and prevention of common communicable and non-communicable diseases. Environmental health must be integral component of the activity.
- (ii) Reduction of mortality, morbidity & disability. This involves multisectoral and multifarious activities which are well coordinated.



- (iii) Development of multidisciplinary and multilevel health manpower.
- (iv) Information, education and communication (IEC) persistent efforts and waging war to empower the people to become self-reliant in matters of health; and improve their coping capacities. The main objective is to bring about behavioural change so as to encourage lifestyles which are conducive to health promotion and disease prevention.
- (v) Research directed to solving health problems and ensuring progress. This involves health systems research (HSR) for optimum application of available knowledge and technology for welfare of the people and better quality of life. HSR should be an integral part of management of health services.
- (vi) Providing advocacy and securing community participation, and collaboration and cooperation of other developmental sectors. It is necessary to buttress people and the communities to take decisions that determine their health status; and participate and support developmental programmes of the PRIs and other local self-governments.
- (vii) Procuring adequate resources, including finance, trained manpower and strong public support.

In view of these thought-provoking distortions, this paper is aimed at facilitating and redesigning the national and State level policies and activities which are needed to strengthen public health system and provide Health For All in the pursuit of achieving good quality of life with productivity, without infirmity and saving lives.

#### **Where we went wrong and our shortcomings<sup>6</sup>:**

Several factors and situations have led to the shortcomings and failures with a variable mix of general, management, technical and professional components. Critical analysis of various shortcomings and deficiencies will help in deciding on the broad strategies and alternative approaches needed for strengthening national and state public health systems. In view of the considerable diversities and disparities, ideally every district needs to be taken as a unit for assessment, critical analysis and planning locally relevant corrective measures for a stronger public health delivery system. At the national and State levels adequate flexibility and open-mindedness are essential to ensure that the local felt-needs are fully satisfied. The solutions will neither be simple nor uniformly applicable. The present constraints, shortcomings, etc., are briefly listed as guideline for designing comprehensive and integrated health development programmes.

**1. Lack of public and political support:** People feel the need for health only when it is lost. Public health is remembered only during outbreaks of epidemic, major disaster, or high mortality and forgotten soon after the event is over. Even the elites and educated people have a poor level of health consciousness; they feel that medical and health care are synonymous and ignore their harmful habits and lifestyle. Political will is essentially for sophisticated medical care in five-star hospitals, rather than for provision of the basic health needs like hygiene and cleanliness, safe drinking water and sanitary disposal of excreta and other wastes. It is not realized that what is claimed to be cured by the doctors is the clinical disease, but the multiple factors causing disease are left undisturbed. Thus, there is gross neglect of the basic public health measures and common people are ignored in decision making process.

**2. Antagonistic impact of technological development:** The modern sophisticated diagnostic procedures such as sonography, CT and MRI scans, angiography, endoscopy, etc., have resulted in early recognition, precise location and nature of the pathological lesions. With brainwash effect of all these exciting technological developments, clinical medicine has completely overshadowed public health discipline. This is despite the negative impact of technology such as commercialization and exploitation raising ethical issues. This has aggravated imbalance in the Governmental budgetary allocations between the curative services vis-à-vis public health services. World Bank funds are used to upgrade District Hospitals. In brief, the sum total of technological advances in health and medical sector is negative.

**3. Professional inadequacy and apathy of the Health Ministries and Directorates:** This was a major reason of failure to provide Health For All by 2000 AD due to inability to grasp and fully appreciate the precise meaning, scope and implications of the term primary health care. As a result, all that happened was some extension of (poor quality) curative services in the remote rural areas. Even the poor were not satisfied with this medical care and preferred to go to a private doctor. Health Directorates failed to perceive the high potential of multipurpose health workers' (MPW) and community health workers' (CHW) schemes towards the goal of health for all (HFA).<sup>7</sup> These innovative schemes were a leap forward in empowering the community to attain self-reliance in health care. With the inapt handling, CHW/HG



scheme is defunct and functioning of the MPW scheme is far from satisfactory. Intersectoral collaborative nature of primary health care approach was not there.

Inadequacy and poor quality of epidemiological practice, services and surveillance system resulted in late recognition and diagnosis of epidemics. Control measures were instituted late when epidemic was on its natural decline. In effect, many persons suffered and several died by the time epidemic was recognized, e.g., in outbreaks of malaria, Kala-azar and cholera. The disease control programmes failed to keep pace with the epidemiological and social transition and became inefficient. Programmes continue as vertical despite mandate of the national health policy and expert opinion. In defiance of epidemiological diversity, the disease control programmes lacked relevance and flexibility. Because of inadequate technical insight and competence, management failed to introspect, resort to epidemiological tools and find new strategies, alternatives and innovative ways of doing things better, effectively and efficiently. Largely because of this, the burden of communicable diseases continues.

With over-riding family planning and welfare programmes, public health services in general lost strength. It became so weak that it could handle only one programme at a time and performed poorly, that too at the cost of all its other functions. With poor performance of the Family Welfare programme, boost was intended by integrating MCH into it. The result was degradation of the MCH quality. To rectify this Universal Immunization programme was launched. With this, whatever was remaining in MCH went to the dogs. The worse came with introduction of pulse polio drive to eradicate poliomyelitis. While this drive will not eradicate polio, it has significantly reduced the UPI immunization coverage. Thus, for want of public health insight, the cause of classical and broad-based MCH Services has been damaged.

As a result of influence of the international and other external funding agencies, distortions have crept into national priorities. The instances include: DOT strategy for tuberculosis control, impregnated mosquito-nets for malaria control, and undue priority to AIDS and HIV control. No infectious disease can ever be fully controlled and its incidence reduced *per se* by chemotherapy, i.e., treating the affected. This will only reduce mortality and duration of illness; thus reduce

prevalence. Primary preventive measures as a part of public health practice are absolutely necessary. The incidence of diseases like tuberculosis and leprosy will not come down till the housing and other socio-economic factors are taken care of. We shall have to evaluate old programmes and take up health systems research to develop a set of area specific new interventions.

Effective health management information system has failed to evolve even after decades of research. Main reason is our administration is ad hoc and not based on evidence. At the district and sub-district levels, epidemiological surveillance is an unknown entity. Use of aggregate data at the national level camouflages the inter-State wide variations as seen in Tables 1, 4A and 4B. Similar pitfalls exist regarding inter-district variations and the ground realities. For effective management of local issues and needs, it is crucial to gather and use local (disaggregated) information and data.

#### **4. Conservative bureaucratic administration:**

With the characteristic avidity and negative attitude and skepticism of the bureaucratic system, the basic support for placing people's health in their own hands remained a dream. In addition, term of office of the bureaucrats is about two years with the result that they tend to concentrate their own performance, are largely reactive to critical problems, and are not proactive with long term perspective. Management is mostly by crisis. Administration tends to maintain *status co* and the decisions are largely *ad hoc*. At the national level varied and divergent needs of different States are neither considered nor adjusted and accommodated. Therefore, local prerequisites are not granted. Credibility of the government health services in the Primary Health Centre complexes and hospitals is low because of indifference shown to the patients and for want of basic inputs such as staff and medicines, housekeeping, etc. No attention is paid to coordinate programmes of various divisions and bureaux within the health department itself.

Decentralization is taking place very slowly and half-heartedly. In this regard, State Governments are no better vis-à-vis *Panchayati Raj Institutions* (PRIs) and *Nagapalikas*. State authorities are reluctant to decentralize and empower the PRIs and people. Genuine efforts have not been made to institute local governance and control. This is interesting because there is a parallel between better performance in improving the health status and the effective decentralization and empowerment of the PRIs. (Tables 4A & 4B).



Lack of flexibility is reflected in over-standardization and uniformity of public health interventions in different States and districts notwithstanding wide disparities, imbalances, and specific political, epidemiological & socioeconomic characteristics. States such as Maharashtra, Tamil Nadu and Punjab are well ahead in socioeconomic and health development than M.P., U.P. and the

Northern States. Despite this fact, none of the national health programmes take cognizance of this factor in planning, financing and management. For instance, although infant mortality rate in Kerala is 10 as against the high of 87 per 1000 live births in Orissa, measures to reduce infant mortality are the same in these States. Failure to concentrate on the BIMARU States was a big lapse.

Table 4A: Rural Health Indicators by Empowerment of Panchayati Raj Institutions

State Categories	CBR	CDR	IMR	EL <sup>0</sup>	TFR	P<15	LR
<i>With Empowered PRIs</i>							
Maharashtra	20.5	8.3	52	65.3	2.9	35.2	77.3
Tamil Nadu	19.1	8.6	50	65.2	2.1	28.8	73.5
Gujarat	26.5	8.3	68	61.5	3.3	33.7	70.0
Andhra Pradesh	21.0	8.8	71	61.6	2.6	33.6	70.9
Karnataka	23.4	7.8	65	61.7	2.6	32.4	67.0
West Bengal	22.5	6.8	52	64.5	2.9	35.5	69.2
<i>Average for India</i>	26.6	8.7	69	62.4	3.5	37.0	65.4
<i>With Disabled PRIs</i>							
Uttar Pradesh	32.6	10.2	83	61.2	4.8	40.8	57.4
Madhya Pradesh	32.2	10.4	90	56.8	4.1	39.2	64.1
Rajasthan	31.9	8.0	81	60.3	4.4	39.0	61.0
Bihar	31.8	8.2	62	63.6	4.5	41.3	47.5
Orissa	23.6	10.3	91	58.5	3.0	34.7	63.6
Assam	27.5	9.6	73	57.3	3.4	38.6	64.3

Sources of Data : Foundation for Research in Health Systems (2003), Health Monitor, Ahmedabad.  
Sample Registration System Bulletin, Volume 37(2), October 2003.  
Health Information of India, 97-98. Min. H&FW, GoI, and Rajya Sabha Unstarred Question No. 371, 04-03-2002.  
Note : CBR = Crude Birth Rate, Rural, 2002. CDR = Crude Death Rate, Rural, 2002.  
IMR = Infant Mortality Rate, Rural, 2002 TFR = Total Fertility Rate, 1998. Lowest of 1.8 in Kerala.  
EL<sup>0</sup> = Expectation of Life at Birth, 1996-2001, estimates LR = Literacy Rate, Persons, 2001  
P<15 = Percentage of Population below 15 Years of Age, rural, 1998.

Table 4B: Maternal mortality, ANC coverage and provision of safe-delivery

State	MMR (1998) (per 100,000 births)	Percentage of Women Having	
		Full ANC	Safe Delivery
Gujarat	28	8.3	56.3
Tamil Nadu	79	20.7	82.5
Haryana	105	3.2	32.8
Maharashtra	135	8.6	61.4
<b>India</b>	<b>407</b>	<b>10.6</b>	<b>40.4</b>
U.P.	707	1.6	21.0
Rajasthan	677	1.9	33.5
M.P.	498	6.5	27.7
Assam	451	10.7	31.1



**5. Leadership crisis:** Capability and expertise for public health administration has declined drastically. After integration of public health and medical services, a treatment-oriented clinician, with no formal education in public health and epidemiology, time and again holds the post of Director General of Health Services in Delhi or of the Director of Health Services in the States. Such a person has faith and erroneous belief in that expansion and strengthening medical care improves health status automatically. Clinically oriented Leadership neither has interest nor enough technical insight into public health. With failure of the medical technocrats, bureaucrats took over, but they do not have real cognizance of public health problems. Bureaucracy in itself may not be detrimental as it is now, if the bureaucrats have sufficiently long tenure and sustained interest in health system at State and Central levels. The situation is the same in the districts. Briefly, integration of medical and public health has caused disintegration and breakdown of public health leadership, direction, administration and management.

**6. Lack of intersectoral approach:** Apart from not being proactive, health departments are negligent and indifferent in taking initiative and ensuring intersectoral participation and collaboration for health development. There is no vigilance to safeguard health from adverse effects of development in other sectors, e.g., irrigation projects creating malariogenic conditions, urbanization creating slums, pollution due to industrial growth and heavy vehicular traffic, etc. For want of advocacy on the part of health authorities, many developmental sectors are neglecting and rendering disservice to the basic objective of developing a welfare society by disregarding impact of health on and of their programmes. The best example is of environmental health which is crucial but outside the jurisdiction of health ministry; and this calls for either close coordination or coherence. This is also true in the case of the Ministry of Human Resource Development in the task of making the people health conscious.

Environmental health is getting degraded. Pollution levels of the harmful agents in the environment have gone beyond the safe-limits. Unsafe drinking water accounts for 80 to 85 per cent of illness in the country. While provision of sanitation and safe water supply is a statutory obligation of all the local self-governments, even Delhi Government has not only failed to provide

these basic needs, but has also gone to the extent bottling 20 litres of drinking water at Rs. 10, rather than meeting the obligation of providing safe drinking water equitably to all its citizen. Under these circumstances, satisfactory control of diseases such as cholera, diarrhoea, dysentery, infectious hepatitis, typhoid fever and other gastro-intestinal ailments, is out of question. Air-pollution is on the increase, so also the respiratory ailments.

Urbanization is a global phenomenon and population is getting divided almost equally in urban and rural areas. In India, nearly 40 per cent of the people live in urban areas and this proportion is increasing. With overcrowding and overuse of the civic facilities, the cities and metropolitan areas are no longer healthy. Ever growing slum population, glaring disparity between the rich and the poor, inadequate and unsafe water supply, substandard sanitation and hygiene, pollution are the major problems. Rapidly deteriorating urban health situation is not receiving necessary attention it deserves.

**7. Health manpower crisis:** For want of health manpower development policy, *Ad hoc* training programmes have resulted in imbalance, distortion and poor deployment of health manpower. Relatively, there is overproduction of medical graduates and deficiency of other cadres. Undergraduate medical education has miserably failed to produce badly needed 'General Practitioners' or 'Family Physicians' resulting in a severe setback in strengthening the backbone of public health system, viz. strong 'General Health Services' catering for the first level curative or 'primary medical care'. As a result, India is the only country where we need national programmes even to provide diagnosis and treatment of common diseases such as tuberculosis and malaria. Further, this has also posed major impediment in disbanding vertical programmes such as malaria control, leprosy eradication and integrating them into the general health service. Training is not need-based and neglects practical exercises and skill building. Despite establishment of department of preventive and social medicine in every medical college, prevention has not become an integral part of clinical practice.

Facilities for postgraduate education in public health are grossly inadequate, of poor quality and badly neglected. Lack of career opportunities to those who go for public health service compared to those to the medical specialists has deterred merited students and doctors from opting for public



health speciality. There is paucity of competent public health specialists.

**8. Mismatched organizational set-up:** With impromptu and *ad hoc* expansions, the organizational set-up of Health Ministries and Departments at the central and State governments has become out-dated, duplicate, colossal and inefficient. The organizational set-up has not kept pace with the changing role, technology, function and responsibility. In brief, the central and State administrative setups are unwieldy and largely redundant. They have become the bottlenecks for progress. District level organization which is most crucial has remained dismally weak. Performance of primary health centre complexes and deployment of manpower at grassroots are far from satisfactory. Because of apathy and poor quality of the services, even the poor are not satisfied. Appropriate changes in the organizational setup are imperative.

**9. Undue centralization:** Adverse impact of vertical national programme and undue centralization is best illustrated by the failure of the family welfare programme. Not only this, but it has caused serious damage to the public health services by wrecking its primary functions. In addition, with undue centralization of authority at the national level, the State Health Directorates have lost initiative, have become passive agents in health development and have failed to provide public health services to the people. The guidelines issued by the Centre are blindly followed by the State authorities as a directive. In brief, although constitutionally health is a State subject regrettably none of the States have assumed the responsibility of providing 'public health' to their people.

**10. Public health institutions:** These form the backbone of the public health system of a country. Significantly, because of neglect, most of the public health institutions in India are either stagnant or decaying.<sup>8</sup> Effective leadership and direction are not there. The consequences are (i) a degeneration in the quality and impact of key institutions in the field of education and research in public health, (ii) a steep decline in the quality of public health specialists, (iii) key positions in public health management, such as of the Director, are filled by clinicians, with little or no training and experience and/or exposure to public health, (iv) generalist administrators belonging to the IAS cadre were allowed to take policy, operational and even technical decisions on public health and medical matters, and dominate as (pseudo)experts in the field of public health in the country, (v)

postgraduate institutes of 'medical sciences' were established at the cost of adequate funding for training in public health disciplines. Whereas there are many Postgraduate Institutes of Medical Sciences and over 210 medical colleges in India, there is just one school of public health and it is uncared for, (vi) the general lack of concern about quality has adversely affected the reliability and accuracy of available public health laboratory services. In brief, the effect is considerable deterioration of public health system.

**11. Neglect of research:** Lack of aptitude for research (even trial and error method) on the part of health managers is detrimental to performance and effective management. Need for health systems research for effective application of available scientific knowledge and technology for welfare of the people is still not recognized. Interventions are selected without field trials for efficacy and feasibility. Further, locally successful alternative and innovate alternatives developed by the health officers and voluntary organizations were not tested and appropriately modified and/or made flexible for wider application in diverse conditions. Cost-effectiveness is never established. In the case of Indian Council of Medical Research, biomedical research is mostly repetitive, epidemiologically mediocre, not designed to solve health problems and not directed to generate database for planning.

**12. Ignoring expert opinions:** Many of the reports of Expert committees which are often nominated by the Government to critically appraise health programmes remain in cold storage without any action. Even if the reports are accepted, it is common practice to ignore important and critical recommendations without assigning reasons, and minor ones which are of little merit are accepted, e.g., multi-purpose health workers' (MPW) scheme was not applied to and above district level health administration. Community health centres became 30 bedded rural hospitals instead of functioning as sanitation-cum-epidemiological centres. In the control of population growth obsession with sterilization operations and contraceptives continues. The National Population Policy 2000 (NPP has met only once in four years) aims meeting all kinds of unmet needs of the poor, but the focus at the grassroots still remains only on the unmet needs for contraception and in practice emphasis is on ANMs bringing 'cases for tubectomy'.

National health policy has been revised and new policy has been adopted. It is pertinent to point out that the previous health policy statement



was highly critical of the situation of public health system; its directives were laudable. However, major policy mandates were ignored, remained on paper or even negated. Some examples are (i) instead of integration of existing vertical programmes, new programmes are added, (ii) the general health service was neglected rather than strengthening it, (iii) failure to decentralize and place people's health in people's hands, and (iv) indifference in providing the full package of nine elements of primary health care to the poor and other have-nots. Briefly, the old policy suffered from contradiction between its profession and practice from very inception. The new policy should not go that way and emphasis on primary health care should continue.

**13. Lack of true partnership with the voluntary agencies:** There is no coordination and real partnership between the Government and voluntary organizations. It is not recognized that voluntary organizations play specific roles which are complimentary and supplementary to those of the Government. Genuine voluntary organizations are not subordinate but independent agencies. Services such as for the tertiary health care are best left for the corporate sector. Full details of the role of voluntary organizations and people's action groups are available else where.<sup>9,10</sup>

**14. Private sector:** Profit is the primary motive of private organizations although service to the poor and disabled may also be one of their objectives. The private sector does not cater for preventive and promotive health care. It mostly provides medical care for a wide range of diseases and symptoms, but often fails to provide treatment to the poor suffering from common ailments and diseases like tuberculosis and malaria. With modernization, there is growing tendency for commercialization and exploitation. Attempts to rationalize the use of drugs, have failed. While Public/Private partnership should be developed, private medical practice needs to be regulated (i) to ensure quality, accountability, cost-effectiveness and rationale treatment, (ii) for health insurance, (iii) standards to protect consumers and providers, etc.

**15. Adverse influence of international organizations and external funding agencies:** With globalization, interaction with these bodies is on increase. International health and related programmes are intended to help developing countries. However, these are often based on the background of home-country experience of the international experts, and may not often be relevant

to the conditions in the recipient country. The donor agencies often put some conditional stipulations which may not be good /appropriate in the national interest. The antagonistic effects include distortion of national policies and priorities, and programme strategies and interventions are based on the agenda of the funding agency like the World Bank ignoring local cultural and social relevance, epidemiological diversities, managerial ability, etc. While globalization is inevitable, its adverse impact should be minimized, if not averted.

**16. Financial constraints:** Because of low priority, budgetary allocations have progressively declined in real terms, while the needs have gone up considerably. To make the matter worse, because of economic reforms and structural adjustments, budgetary deficit is being contained by reducing operative and capital expenditures, thus, materially increasing the proportion of non-operative expenditures such as on salaries of the staff.

On the top of this, because of wrong priorities, limited financial resources are spent wrongly. Funds at disposal are neither fully utilized nor used cost-effectively. There are distortions. Recently, Government of India has declared its intension to establish clones of AIIMS (All India Institute of Medical Sciences, New Delhi) in many other States at huge costs. Much larger funds are provided for medical education and tertiary high-cost medical care to a few, leaving only a meager fund for primary health care facilities to the common people. State Governments expenditures on promotive and preventive health care from their own fund are insignificant. Callousness goes to the extent that if the Central funds or free supplies are not available, State funds are not sanctioned for major services such as immunization; and treatment of tuberculosis, malaria or leprosy come to standstill.

In India economic reforms have not generally helped in fashioning a good public health system which benefits the poor. Public health sector is adversely affected because of economic reforms and budgetary allocations for the disease control programmes are progressively lowered. Structural adjustments have resulted in reduction of the operative and capital expenditures. As much as 60 to 70 per cent of the health expenditures are for payment of staff salaries, rents and other non-operative or revenue heads. Private services are primarily a business and try to get maximum and quick returns for the investment. Privatization of most of the primary public health measures is



impracticable, while there is some scope for it in medical care. Privatization of medical care will simply promote costly private hospitals with all latest equipment, or health resorts and gymnasiums with all sorts of gadgets to reduce the body fat of the rich.

17. These are then the things which have collectively weakened and disorganized the public health systems in India. Some of these factors are synergetic; and all taken together make public health services ineffective & inefficient. Important strategies & management inputs needed for strengthening public health and ensure primary health care will be facilitated if these items are attended to.

**Proposed Strategies and Approaches:** The need of 21<sup>st</sup> Century is to depart from the beaten path of the last quarter century which has misled and fully deceived us. We shall have to explore new ways where there will be a lot to discover, learn and prepare a roadmap to follow. The term decentralization is used in this document in two options, firstly horizontally between Ministries & Departments within Governmental setup and secondly vertically from the Governments to the local-self Governments, voluntary agencies, private and corporate sectors and ultimately the people at grassroots. The strategies and approaches can be grouped in three broad categories (a) strategic planning, (b) manpower development and training and (c) practice of public health and appropriate organizational transformation.

**1. Strategic planning:** Strategic policy is both a mechanism and an expression of the political will, full support and pledge, which are vital to the national endeavour to strengthen public health system adequately and make it effective. With glaring failures in the public health sector, a fresh mindset is necessary to drive home that health is all pervasive and every body's business. The focus has to be on the people; the programmes should be aligned to the needs of the people in diverse conditions and locations. Further, the object or main target should be the 'have-nots' and underprivileged groups of people; everything else should be geared to provide support grassroots activities to ensure desired outcome and impact. The vicious cycle that exists between poverty, inequality, social injustice, poor health & uncertain access to health services, should be broken. The aim is sustainable health development through primary health care approach, as an integral component of socioeconomic development for a welfare and democratic society. Ultimate goals are equity,

justice, alleviation of poverty, peace, prosperity, happiness and better quality of life. People cannot be separated from their environment. Therefore, the next priority in health development should be accorded in providing healthful environment, making the domestic and work locations pollution free, and preventing degradation of environment in general. It is needless to state that the essence of development is harnessing scientific & technical developments for the betterment and happiness of the people at large. An important issue of the Basic minimum services in rural India has been comprehensively covered in the Annual issue of Kurukshetra {50(12), October 2002, Ministry of Rural Development}. It covers many things which fall under primary health care & more, viz. housing, road, fair price shop, primary education, etc. It will be imperative and cost- & efforts-effective to collaborate with the Ministry of Rural Development in the task of providing basic health needs to the people. It is vital to recognize and exploit the transverse benefits from and to other programmes

One of the major challenges is to shift the preference of the government, public, corporate and private sectors from the secondary and tertiary health, i.e., hospital services to in favour of primary health care, i.e., what may be called 'new public health'. An indispensable part of the effort is the district level policy formulation and decentralized planning for socioeconomic & health development. This is the most critical and precise exercise in strengthening the public health system in India. The advantages of this decentralized activity are: (a) Local needs of the community can be ensured. (b) All the vertical programmes come to the end point at the villages. Integration of developmental inputs and activities of different sectors, therefore, becomes easy at the grassroots paving way for effective and sustained health development. Potentially, intersectoral cooperation and collaboration can be satisfactorily resolved, in fact could be inevitable, because of convenience and local initiative and pressure to meet the unmet needs. (c) Community involvement & participation are facilitated, in fact, become imperative. In reality, there should be Government participation in peoples' programme. (d) Development of local leadership, an essential element or success, is energized and promoted. (e) People do get organized and are empowered in their own settings. (f) Given expert guidance, the resources and appropriate technology, local governance improves performance and productivity. (g) The process of development becomes democratic and transparent, thus discourages corrupt practices.



An indispensable part of the effort is the district level policy formulation and decentralized planning for health development. This is the most critical and precise exercise in strengthening the public health system of the nation. The advantages of this decentralized activity are: (a) Local needs of the community can be ensured. (b) Integration of development inputs and activities of different sectors becomes easy, resulting in effective and sustained health development. The un-met problem of intersectoral cooperation and collaboration can be satisfactorily resolved because of local initiative and convenience. (c) Community involvement and participation are facilitated, in fact, become inevitable. (d) Development of local leadership, an essential element for success, is energized and promoted. (e) People can be organized and empowered in their own settings. (f) Given expert guidance, the resources and appropriate technology, local governance improves performance and productivity. and (g) The process of development becomes democratic and transparent, thus discourages corrupt practices.

It is necessary that each State formulates its own State specific health policy, plan and programmes going beyond the national policy and plan, but within the objective of national frame. The State policy and planning are essentially amalgamating, refining and coordinating the district, sub-district and community level planning.

In turn, the district plan and programmes are essentially summation of the village level exercises, moving below upwards through the local self-government institutions, e.g., *Panchayati Raj* institutions such as *Gram-Sabha*, *Panchayat Samiti* and *Zilla Parishad* (PRIs) in rural areas and *Nagarpalikas* in Urban areas. In initial period, the people, local organizations and their elected representatives need to be properly and adequately informed, trained and empowered. Further, they are guided and assisted, as and when necessary. Community level planning and implementation of health care programmes will encourage evolution of local database and development of workable health management information system. There is no need to elaborate the process further, because it is now obvious that such a bottom-level exercise will make State and National plans need-based and people oriented. The higher level tasks at the State and National authorities will be coordination between different district plans, training, research and assessment, and providing adequate financial resources, freedom, flexibility and authority. The critical inputs are new directions, supports and

initiatives which are people-centered, adequate and timely. In this way, health development will become people's movement and health care facilities will develop and establish around the life patterns of different people.

## **2. Health Manpower development and training:**

Soundness and efficiency of any system rests on and ultimately decided by the quality, capability, adequacy and commitment of its manpower. Of all the resources, manpower is the most vital and basic. Therefore, indispensable strategy and approach to strengthen public health system is to accord highest priority to health manpower development. Public health system requires persons at various levels of its organization and programmes; these persons are required to shoulder responsibilities and perform efficiently to attain fully and economically, the objectives of the organization. For this to happen, staff should be educated and trained for producing officers who are professionally and technologically capable, socially motivated, able to deal with development and day-to-day management efficiently, study and solve the problems and willing to proceed and perform duties within the existing constraints. The current health system gives only lip sympathy to task-oriented public health education and training. Emphasis should be on quality and practice. An urgent need is of motivated and capable teachers who are paid well and given adequately high status.

The most critical inputs for optimum management and utilization of manpower are capable leadership and appropriate direction. Unfortunately, this is not the case with our public health system, hence the breakdown. There is urgent need to invest and establish postgraduate institutes to train public health specialists and superspecialists such as epidemiologists and public health engineers. Appropriate measures are also required to attract talented person to opt for careers and personality development in public health.

Lastly, but not the least, in health system, the beneficiaries – the people – cannot really benefit, if they remain passive. For improving health status, individuals and communities shall have to be mostly self-reliant. To-day, there is not much concern and sustained interest in the public health measures for preventive and promotive health care. Dismal condition of sanitation and hygienic in particular and environmental health in general is threatening. However most sophisticated and modern hospital facilities for tertiary 'health' (medical) care are being raised even by the



Governments. For the very reasons, public health system cannot be strengthened unless the people at large, politicians and bureaucrats feel necessity for it. Therefore, this aspect of human resource development, assumes supreme significance.

**3. Practice of public health:** Practice leads to proficiency. Public health system can get the know-how, if public health is practised deliberately, intelligently and faithfully. In the process, the organization learns on its own, progressively improves and becomes stronger. The best strategy is to amend mindset, ways of administration and management. Our main weakness is management. Thus, a simple and quickest way to ensure development of a strong and efficient public health system is to hand over the managerial responsibility and authority to a team of competent and knowledgeable persons with good track record. Search and employment of suitable persons who are experts in public health management, preferably those with experience in practice of health development is urgent imperative. We have living examples even of the bureaucrats who have demonstrated remarkable improvements in very short period, e.g., at Thane in Maharashtra and in Surat in Gujarat.

Traditional system of 'public administration' should give way to 'business management', profit being Health For All (have-nots) by 2010. Development of efficient monitoring and evaluation system and supervisory mechanism, require due consideration to improve performance and ensure desired impact in time. All the constraints and shortcomings described earlier should be rectified as quickly as possible. Community participation and involvement should be raised to the level of community initiative and social actions for safeguarding health. Topic of organizational setup is covered elsewhere.

Significance of development and training of manpower has been emphasized earlier. However, for satisfactory performance, health personnel should be deployed appropriately, provided with supportive supervision, and given all the prerequisites for working efficiently. Inappropriateness of the present organizational setup of health delivery system in India has been cited in the National Health Policy Statement, as a cause of poor performance. Reorganization of the setup of health services system in India is imperative. Key elements to consider are, separation of the public health and medical departments, decentralization coupled with coordination,

comprehensive & integrated approach, autonomous & strong public health institutions, regionalization, empowering people through PRIs, and development of supportive and two-way referral systems.

Management of illnesses, and diagnosis and treatment of diseases, is a primary function of the general or basic health services. However, this is not the case of public health system in India. National disease control programme has taken the function of treating even the common ailments such as tuberculosis, malaria, etc., instead of subserved by the general health services. This has proved to be a wrong and wasteful approach, and should be immediately corrected. First level management of illnesses, and diagnosis and treatment should be taken care of by the private medical practitioners and the general duty medical officers, and nursing and paramedical staff of public dispensaries, clinics, primary health centres, etc.

Man being the most important resource for development, expenditures on health should be considered as investment and not as consumption. Inadequacy of funds is a characteristic feature of any public health system. This problem can be tackled by (a) setting health priorities by comparisons which are based on mandatory criteria like the extent of mortality and morbidity of the condition, economic and societal impact, efficacy of the available intervention/s and feasibility of implementation, etc., and (b) observance of economic principles such as cost-benefits, cost-effectiveness and sustainability. Again all this has to be done in conformity with the national socioeconomic development, cultural settings and social relevance.

In India, these fundamental rules of public health practice are being flouted. Irrationality this has resulted in glaring and ominous consequences to such an extent that even the newspapers are taking its cognition. A recent column reports, "The allocation of funds through government and non-governmental organizations for AIDS program is estimated as Rs 1,450 crore, for Hepatitis-B estimated as Rs 500 crore, while the budget for tuberculosis is a mere Rs 194 crores". Tuberculosis which is an undisputed top priority public health problem in India, gets the least, despite it is curable with an effective and affordable treatment. However, because of international influence, HIV gets highest funding in spite of its low incidence and mortality, HIV infection is incurable and drugs are very expensive. A venereal disease like HIV/AIDS cannot be controlled unless man gives



up promiscuity. Because of commercial vested interest, hepatitis-B gets priority over tuberculosis, Hepatitis A and C. Such lapses in the public health practice should be scrupulously avoided. The task of setting priorities should be assigned to a team of competent & experienced public health specialists, managers and economists.

In great contrast, it is worth mentioning the strong American political will and high epidemiological sense regarding basic measures to reduce of high teenage birth rate and primary prevention of sexually transmitted infections such as HIV/AIDS. As early as 1981 abstinence-only education began with passage of the Adolescent Family Life Act (AFLA). Subsequently there were modifications and the 2003 federal budget provision was more than US\$ 135 million for a eight point strategies: (a) has as its exclusive purpose, teaching the social, psychological, and health gains to be realized by abstaining from sexual activity; (b) teaches abstinence from sexual activity outside marriage as the expected standard for all school age children; (c) teaches that abstinence from sexual activity is the only certain way to avoid out-of-wedlock pregnancy, sexually transmitted diseases, and other associated health problems; (d) teaches that a mutually faithful monogamous relationship in context of marriage is the expected standard of human sexual activity; (e) teaches that sexual activity outside the context of marriage is likely to have harmful psychological and physical effects; (f) teaches that bearing children out-of-wedlock is likely to have harmful consequences for the child, the child's parents, and society; (g) teaches young people how to reject sexual advances and how alcohol and drug use increases vulnerability to sexual advances; and (h) teaches the importance of attaining self-sufficiency before engaging in sexual activity. There is a lot of debate on this programme; and this is covered in a separate chapter on the control of HIV/AIDS in India. However, this clearly points out our incapability to promote and exploit our strong social values and ethics in controlling sexual behaviour, despite the fact that the eight points mentioned above are the part and parcel of our cultural heritage. Epidemiologically, these are the primary determinants. The main objective of health education is to bring about behavioural change so as to encourage healthy lifestyles and improve people's coping capacities. Why not we do it? <sup>11</sup>

In every culture, family institution was established as a mechanism to ensure and promote monogamous sexual behaviour. All the eight moral values incorporated in the American Act of 1981

are prevailing and accepted by all societies and religions in India. However, with the breakdown of joint family system and intrusion of nuclear families these values and norms have become weak in upbringing of the children. It is high time that we should abandon the alien ideas of sex education in the school and incorporate these and other codes of conducts as a part of curricula in the formal school education. Likewise *Pavitrata*, *Swasthata* and *Sovle* form traditional ways of practising sanitation and hygiene, which have not received attention of our education system.

Lastly, it is necessary to recognize and actively support creative activities of research scientists to find out, test and refine measures and interventions which are more effective, innovative, more acceptable and quickly applicable in diverse conditions for prevention and control of diseases, quicker relief from illnesses, and promotion of health of people, especially of the poor. Health services research should become an integral part of health management. In India, Indian Council of Medical Research needs to be restructured to function as Indian Council of Health Research to provide necessary support to the public health system, leaving the task of 'medical research' to the medical colleges and the national postgraduate institutes of medical sciences and research.

**Interventions Required for the Roadmap to Health For All (HFA):** How to meet challenge? How and where to start? Let us consider these logical questions and work out a plan of action so that the ball starts rolling. Following are guidelines to be followed and important factors which should be guaranteed by the health development planners and managers. In primary health care approach all that we need is to ensure achievement in the substance of its 'nine elements', follow its six principles, and take essential preparatory steps before embarking HFA which we have failed to provide earlier. These are spelled out below:

**1. Nine Elements of Primary Health Care:** This is an integrated package. Thus, the elements should not be singled out. These elements are the roads we shall have to follow in order to reach the destination of health for all through primary health care.

- i. Adequate food-supply and proper nutrition.
- ii. Water adequate to permit cleanliness and safe for drinking, and basic sanitation including housing and waste disposal.
- iii. Services for provision of antenatal, natal and



- post-natal care, including family planning.
- iv. Infant and childhood care including nutrition.
- v. Immunization against the major infectious diseases of childhood.
- vi. Prevention and control of locally endemic diseases.
- vii. Elementary care and appropriate treatment of all age groups for injury and common diseases.
- viii. Education regarding health problems and the methods of prevention and control.
- ix. Provision of essential drugs.

**2. Prerequisites of Primary Health Care:** These six principles will provide essential building materials to pave the roads to health development: (i) Political social will. (ii) Community participation. (iii) Multisectoral approach. (iv) Appropriate technology. (v) Decentralization. (vi) Referral system.

**3. Preparatory Steps for Launching Health Development in the 21<sup>st</sup> Century:** National commitment and willingness to take initiatives for health development are the foremost steps in the task of strengthening public health system. Despite lapse of over half a century, India still have the fundamental problems of poor sanitation and hygiene, hazardous environment, ignorance, poverty, apathy about health, lack of concern of quality, ineffective administration, etc. Thus, in comparison with the developed countries, we have a long list of unfinished agenda which shall have to be attended first and on priority basis. Each State shall have to rejuvenate and strengthen its public health system cater to the basic unmet needs of people living in dissimilar and varied rural and urban areas, and under divert conditions.

In this regard, recommendations of the Regional Conference on Public Health in South-East Asia in the 21<sup>st</sup> Century, which was organized by the World Health Organization, SEARO, in Kolkata, in November 1999, are useful.<sup>12</sup> While appreciating substantial achievements in improving the health status of the people during the past decades, attention was drawn to the unfinished agenda of existing health concerns, & new complex challenges that demand innovative solutions. The centrality of meeting the health needs of the community and our responsibility to preserve, protect and promote the health of the people, was upheld. Items such as poverty alleviation, equality and social justice, gender equality and universal primary education were identified as essential elements in the pursuit of Health For All. It was recognized that public health expertise, capacity building and experience are essential for sustained

partnerships to design, develop and provide health for the community. The importance of public health as a multidisciplinary endeavour to meet those needs was emphasized. Recommendations under the “Calcutta Declaration on Public Health” are reproduced below:

(i) Promote public health as an essential requirement for health development in the Region. In addition to addressing the challenges posed by ill-health and promoting positive health, public health should also address issues related to poverty, equity, ethics, quality, social justice, environment, community development and globalization.

(ii) Recognize the leadership role of public health in formulating and implementing evidence-based healthy public policies; creating supportive environments; enhancing social responsibility by involving communities and increasing the allocations of human and financial resources.

(iii) Strengthen public health by creating career structures at national, state, provincial and district levels and establishing policies to mandate competent background and relevant expertise for persons responsible for health of the population.

(iv) Strengthen and reform public health education and training, and research, supported by networking of institutions and the use of information technology, for improving human resources development.

The members of the Indian Public Health Association, Indian Association of Epidemiologists and Indian Society of Malaria and Other Communicable Diseases, and all those attending the Joint National Conference of Indian Public Health Association, Indian Association of Epidemiologists and Indian Society of Malaria and Other Communicable Diseases, Agra, reaffirmed the vital role of Public Health and its allied disciplines in health care delivery and the overall development of the nation. They endorsed the Calcutta Declaration of 1999 and in addition, called upon the Central and State Governments to take necessary action urgently for:

- initiating and carrying out structural changes at all levels of health services leading to the establishment of Indian Public Health Service, and establishing a cadre and a career structure of public health professionals,
- making public health qualifications and experience mandatory for all public health positions, both at the central and state levels,



- developing and promoting a network of training and research institutions in public, private and voluntary sector, for promoting quality public health practice, education and research.

**National Plan of Action:** India as a signatory member State to the Calcutta Declaration should promote and strengthen public health.<sup>13</sup> This is essential to ensure that various activities are selected properly, are culturally and socially relevant, are tested for efficacy, have potential of acceptance and implementation, are coordinated, have wider application, are sustainable, and are cost-effective. The proposed Action Plan will be presented in two parts: Part I: Strategic – Building the Nine Elements of Primary Health Care, and Part II: Operational – From Public Administration to Business Management. Following are the recommendations for actions and accomplishment:

### ***Strategies for Building Nine Elements of Primary Health Care***

**(A) Strategies for Health Promotion through Primary Health Care:** It is essential to reiterate that primary healthcare is an approach and not a programme by itself. As stated earlier, it is essential to use management processes such as decentralization, community participation & multi-sectoral approach. Use of appropriate technology and development of referral system are other items to follow. These strategies are based on the nine elements of primary health care. These collectively lead to the destination of health for all. This is the most important part of the operations to be planned for decentralized actions.

**1. Adequate food-supply and proper nutrition —** Nutrition is one of the basic life-supports and chief ingredient of health. Ensuring food and nutrition security is a complex undertaking. It is truly a multisectoral exercise involving departments of agriculture, food, health, commerce and industry, transport, social welfare, education, and finance. See diagrams 1 and 2. Food security has been defined as food availability linked to production, food access depending on purchasing power and food absorption as a function of drinking water, health care and education.<sup>13</sup> The Hunger Map of India reveals that food sustainability is not satisfactory in Nagaland, Tamil Nadu, Jharkhand Bihar and Orissa; and in general it is marginal.<sup>14</sup> It is clear that nutrition is not only a question of preventing or treating mal- and undernutrition, but also a lifestyle issue. Diagram 1 clearly demon-

strates the integrated and intersectoral nature, and interdependence of health, nutrition and socio-economic development. Diagram 2 reveals various factors that determine nutritional status of individual members of any community. It shows the complexity and wide range of activities which are required to ensure adequate nutrition through proper food supply and its consumption. These Diagrams together reveal comprehensiveness, relevance, interrelationship and inter-dependence of the nine elements of primary health care. M.S. Swaminathan Research Foundation considers income generation by the poor families as a single major factor.

It is important to note that nutrition programmes such as food subsidies, public distribution system, supplementary food programmes such as mid-day meals for school children and Integrated Child Development Programme (ICDS), food for work, etc., have not made any significant dent in prevention of undernutrition among the poor, let alone ensuring good nourishment. The deplorable state of malnourishment in India is reflected in the high incidence of over 60 per cent of anaemia in pregnant women and of mortality of children under-five years of age (Table 2).

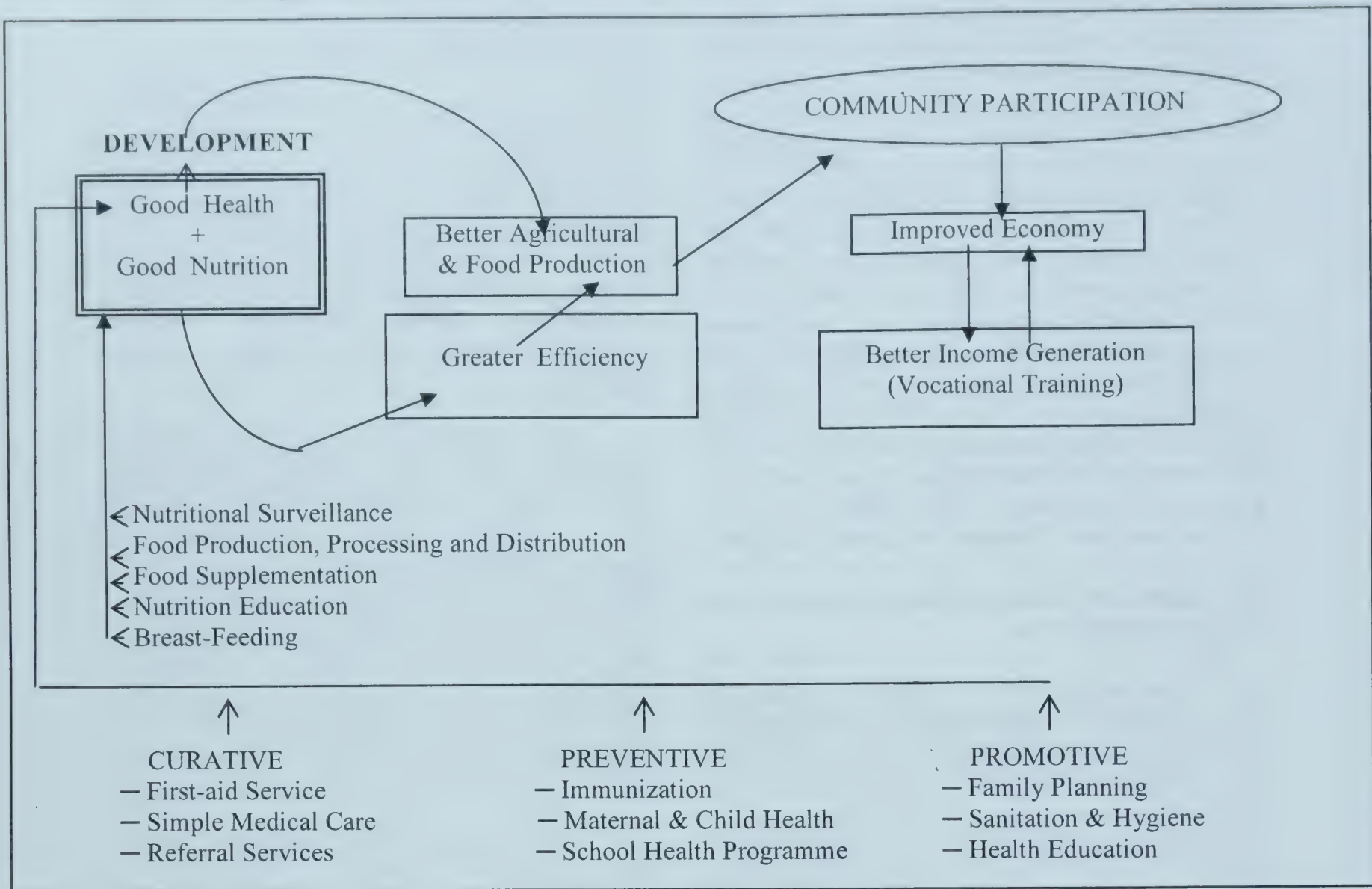
On the other hand, among the affluent classes incidence of overweight and obesity is on increase. Similarly, fast-foods, processed foods, aerated drinks, etc., which are high caloric due to fat and sugar and contain extra salt; foods of animal origin, consumption of alcohol are being popularized by the food industry. This makes room to the diseases of affluence, e.g., high blood pressure, diabetes, coronary heart disease and cancer.

### **Interventions by the Central and State levels:**

(i) Ministries and Departments of Agriculture, Food and Rural and Urban Development – Upgrading programmes to ensure adequate production of varieties of foods such as grains, pulses, vegetables, oil-seeds, animal foods, etc; adequate stocks and proper storage of various foods; ensure transportation to all places; equitable distribution; adequacy and availability of all kinds of foods; ensuring quality and safety of foods through prescribing standards; controlling food processing and manufacturing practices by the food industries and others; ensure adequate income generation of the poor families so that they can buy the foods they require; employment generation and promotion of self-employment, etc.



Diagram 1: Conceptual Framework of Health Development and Nutrition Security



(ii) Ministries and Departments of Education, Women and Children, Social Welfare – To provide for and ensure proper formal and vocational education and training to the members of the poor families; promotion and support to the self-help and such other groups through rural banking sector; school sanitation and hygiene, health and nutrition programmes; training programmes on nutrition and dietetics, etc.

(iii) Ministries and Departments of Environment, Urban and Rural Development: To improve environmental health through supply of safe water adequately and easily accessible; sanitary disposal of human and animal excreta; sanitary disposal of waste water and solid wastes; etc.

(iv) Ministries and Departments of Health and Industries – Prevention of adulteration and misbranding of foods; control of the restaurants, hotels and other eating places to ensure cleanliness, safety and wholesomeness of foods prepared, stored, supplied and sold; help the people to maintain health through promotive, preventive and

curative services, especially to the poor and underprivileged people; prevention and control of childhood diarrhoea and communicable diseases; immunization; prevention and Control of mal- and undernutrition and nutritional disorders; special health care services to the vulnerable groups such as young girls, pregnant and nursing mothers, infants and toddlers, and poor elderly citizens; monitoring nutritional status of families from different socioeconomic groups and from different States; etc.

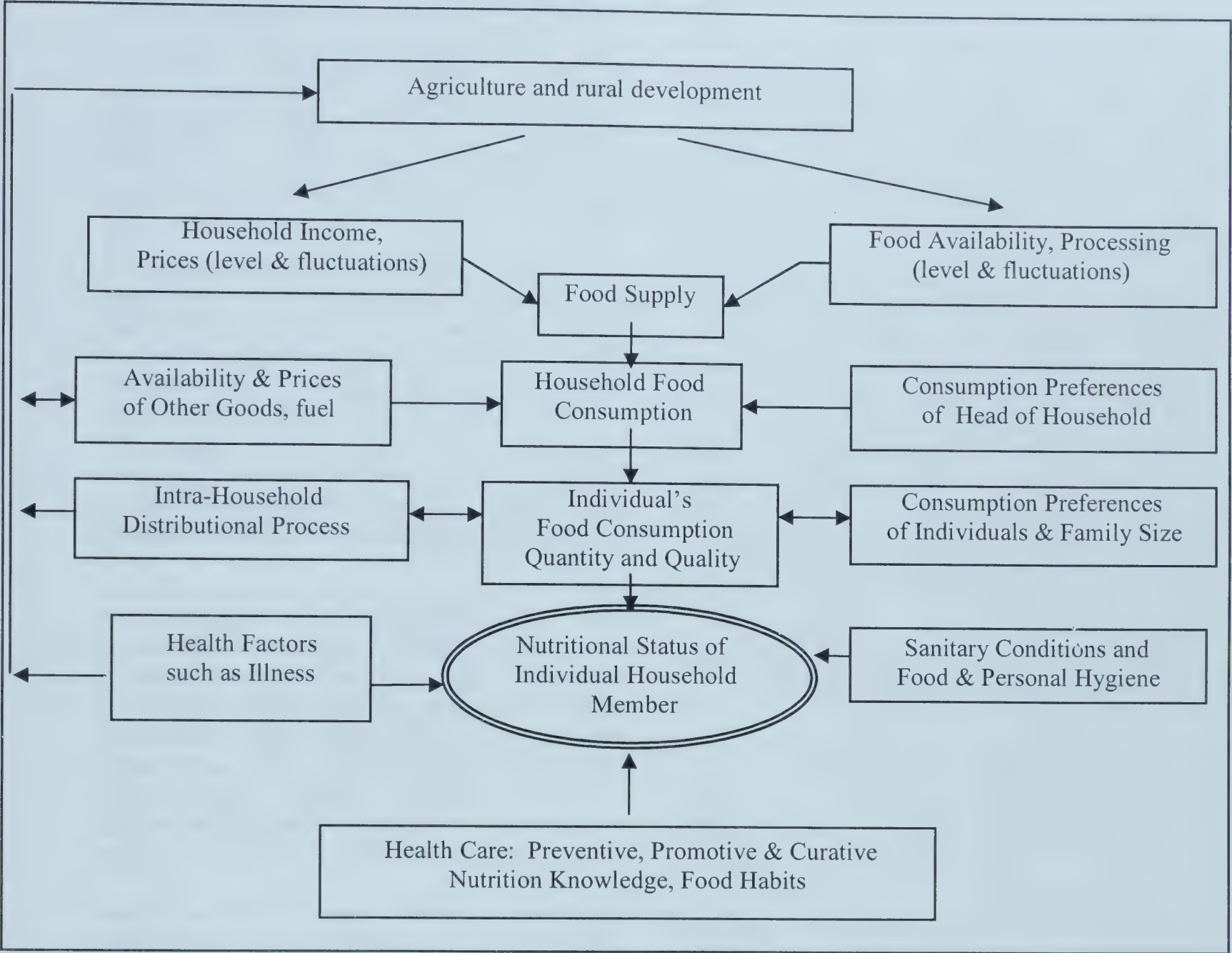
(v) Voluntary, Private and Corporate sectors – To ensure enhancement of nutrition status of the community through their initiatives, through the mass communication media, press, etc.; boost civic values and ethics to ensure cleanliness and observance of hygienic practices by the public, etc.

Any one of above mentioned Ministries or Departments should be identified to assume leadership and ensure enhancement of public nutrition by coordinating concerned departments, assessing and monitoring, and such other activities & program-



mes, etc. The task is demanding because of traditions, food habits and change in the behaviour that is necessary. The interventions are required for the poor and the rich are different.

**Diagram 2:** *Agricultural & Rural Development and other Factors Influencing Nutrition*



**2. Water adequate to permit cleanliness and safe for drinking, and basic sanitation including housing and waste disposal —**

Water is one of the basic life-supports and one cannot live without it for more than few days. Under the insanitary conditions, water gets contaminated with human excreta. Non-availability of safe drinking water is responsible for about 80 per cent of morbidity in India. Despite the International Decade for Water Supply and Sanitation, and national programme for supply of drinking water, even after over 50 years of independence, over 10 per cent of the population is without supply of safe water and places where water supply is claimed to be safe, safety is not guaranteed even at the capital city of Delhi. This is indicative of lack of priority and concern about

public health among the politicians, policy makers and even the public. The paradox is the fact that the sale of mineral water is ever on the increase and even the Government Departments promote and support 'water industry' and remain apathetic to their responsibility for basic public health measures.

What is true of water is also true of all other aspects of environmental health such as sanitary disposal of excreta, effluents, Sullage-water and solid wastes; housing; pollution prevention and control; and hygiene. Sanitary disposal of human faecal matter and sewage is of paramount importance because it harbours many disease-producing microorganisms and other human parasites; and is a common pollutant of the soil and surface water. Accumulated water



provides breeding places for the disease vectors such as mosquitoes; and the decomposing solid wastes breed insects such as house-flies. Undisposed refuse support rodents and domestic dogs by providing food. All kinds of wastes often contain harmful chemicals and become health hazards. Bird-nests, ant-hills, rodent-burrows are the examples of housing created with a purpose. Apart from security, human dwellings should be adequately ventilated and lighted, not overcrowded, not damp, well maintained, and not prone to accidents. A significant number of families in India are either without a house or live in unhealthy house. As a result respiratory infections such as tuberculosis, pneumonia and many childhood infections; contact infections such as leprosy and scabies; sand-fly borne infection such as Kala-azar; rheumatism and rheumatic heart disease; and accidental injuries are common among the poor in India. Air pollution is caused by burning refuse, incomplete burning of household and industrial fuels, industrial gases, dusts and fumes, exhaust gases of automobile and other engines, and so on. Noise pollution is the curse of industrialization, urbanization, industrial machines, domestic appliances, improper use of loudspeakers, and vehicular and air traffic, etc. This is in brief the scope of environmental health provision.

Although technology for sanitation is well known, our past performance is bad. Natural purification is ineffective because high degree of pollution which the water-courses, even the big rivers such as the *Ganga* are not able to effectively neutralize contamination. Air pollution goes on unabated due to deforestation and large scale falling of trees. In effect, the environment has degraded considerably. So-called Health Ministry has played very little role in this gigantic task. It also lacks the necessary expertise in environmental engineering and in human settlement.

It is also important to realize that provision of sanitary facilities *per se* may not serve the purpose unless people cooperate to use such facilities and the general standard of personal and food hygiene is high enough. Both these are the function of human behaviour arising out of tradition, civic discipline, habits, education and training.<sup>15</sup>

#### Interventions by the Central and State levels:

(i) Establishment of a new Ministry and Department of Environmental Health and Sanitation; alternatively, a separate Department of

Environmental Health and Sanitation in the Department of Public Health Works should be created. This reform has to be effected both at the Central and State Governments. This is to be managed by Environmental and Sanitary Engineers and Public Health Experts. The Boards for Prevention of various types of pollutions, together with their laboratories, etc., should be transferred to this new setup. This new organization will have to work closely with the Ministries of Urban Development, Rural Development, Environment, Health, etc.

(ii) The proposed new Department of Environmental Health and Sanitation at the Central, U.Ts. and States will have to function and collaborate with the sister Ministries of Environmental Health and Sanitation or of Public Works and Housing. Initiatives such as the recent environmental action plan of the Ministry of Environment and Forests, for controlling pollution at the national level should be actively followed-up and supported by the health and other authorities at all levels.

(iii) The proposed new Department of Environmental Health and Sanitation will have to function and collaborate with the Ministries of Health, Education and Television and Broadcasting for instituting massive IEC (Information Education, Communication) programmes with an objective to bring about necessary behaviour change of the people in their lifestyles with regard to personal hygiene, food hygiene, civic discipline, and general cleanliness.

(iv) The new Central Ministry will have to work closely with the respective authorities of the States and U.Ts. so as to ensure that the developmental programmes become local and need-based.

(v) The operational level of environmental health, sanitation and hygiene should be the grassroots Gram Sabhas (people) and Panchayats with necessary support from the Panchayat Samities and Zilla Parishads.

**3. Services for provision of antenatal, natal and post-natal care, including family planning; and**  
**4. Infant and childhood care including nutritional support —**

These two elements including immunization of infants and toddlers fall fully under the classical and age-old public health service, viz. MCH (Maternal and Child Health). With degradation of the public health system with



obsession and compulsions of family planning, vital components and vigour in these services were lost. Change of title from Family Welfare to Reproductive and Child Health has not made any change in the performance which remains dismal. Even the immunization coverage under Universal Programme of Immunization (UPI) has come down significantly with the Pulse Polio Campaign; poorly implemented programme for prevention of anaemia with prophylactic iron-folic acid tablets has failed to reduce incidence of anaemia in pregnant women; and the percentage of deliveries conducted at health institution and /or by trained midwife is quite low. We shall have to fall back in 1960s when the MCH care and public Health Services were strong enough. The contents of MCH services are well described in the medical text-books and need not be elaborated here. In fact if MCH services are good, family planning is automatically taken care of.

During the last 50 years or so, the family planning programme has been modified from time to time, both in terms of approach and contents. Even the objective was broadened from family planning to family welfare. However, despite the high priority, huge infrastructure and funds provided, the outcome is not satisfactory. Total population of India has passed a billion marks. Government of India has issued National Population Policy, 2000 statement. National Commission for Population, with Prime Minister as its Chairman, which has been established to oversee and review implementation of the policy, has met only once since its inception. Biologically, growth

rate is the function of fertility of a population, level of which is determined by capacity to survive. Human fertility level is also determined socially by the extent and degree of welfare of the families belonging to a socioeconomic group of a society. Thus the rich tend to have a small family and the poor have large family generally. Notion that the poor deliberately produce more children to offset high child mortality is not correct. Elephant's fertility is the lowest, while the rats breed abundantly. There seems to have no alternative to a totally integrated and comprehensive strategy to lower fertility by improving the survival and quality of life of the poor with effective decentralization and active participation of the people. Basic strategy should be alleviation of poverty and concentration on the welfare of families below poverty-line. Highest priority should be given to places where the problem is the highest, viz., Uttar Pradesh, Bihar, Madhya Pradesh and Rajasthan. All kinds of unmet needs are to be given and this is

what primary health care means to do. All this will have a significant and lasting effect in lowering fertility. Sole attention and efforts to provide contraceptive service will never lead to success.

#### Interventions by the Central and State levels:

(i) Health Departments should revamp the currently dilapidated maternal and child health services by adequately empowering and supporting the Gram Sabhas and PRIs to serve the young girls and married women.

(ii) Health Departments in collaboration with the Education Department urgently institute a regular basic vocational course in midwifery and maternal and child health for school girls. The certificate course of six months theory and six months of practice (during school holidays) should be available for the girls from 7<sup>th</sup> to 10<sup>th</sup> Standards. This should be essentially a practical training for self-employment in their home villages. It is high time that we drop attention on traditional Dais, a dying institution; and replace it with formerly trained and certified '*Sutika* / '*Sueen*'.',

(iii) Merger of Department of Family Welfare at the Central and State levels with the Health Department (to be rightly called Public Health Department). This will considerably and surely help to ensure that the responsibility for controlling population by reduction in fertility becomes universal and taken over by every concerned Government department, agency and sector.

(iv) All departments and agencies of the Governments and the PRIs will have to be activated to do their lot for family welfare and fertility control effectively and in a sustainable way.

(v) Role of every Ministry and Department of Government should be identified and further that each Ministry and Department should be made accountable for their contribution towards lowering fertility and controlling population growth. Special efforts are necessary to ensure that various programmes and interventions reach all the families below the poverty line, irrespective of their location, social and occupational status, etc.

(vi) For defining specific roles and accountability vis-à-vis poverty alleviation and fertility control, of various Ministries and Departments at the Central and State Governments, joint exercises will be necessary, separately with each Ministry and Department. Some suggestions are:



- Public Health Department: (a) To ensure that the full package of primary health care is provided to all the families below the poverty line, irrespective of their location, social and occupational status, etc. (b) To strengthen public health system and services in general, covering all its dimensions. (c) To promote and provide counselling, consultation & contraceptive services, especially to all families below the poverty-line. (d) To take steps, effectively and urgently, to ensure that all kinds of unmet needs are met.

- Education Department: (a) To take a time bound programme to provide primary education to all male and female children of all the families below the poverty-line, irrespective of their location, social and occupational status, etc. (b) To plan and implement schemes to encourage the children from the families below the poverty-line, to continue education up to 10<sup>th</sup> standard initially and then up to 12<sup>th</sup> level. (c) Special schemes should be provided for various kinds of vocational training which have income-generating potential. Children from the families below the poverty-line, especially those whose performance in the schools is poor or those with necessary aptitude, should be given highest priority. Free of cost placement outside their place of residence should be provided, if local facility is poor or not available.

- Department of Rural Development: (a) To ensure gainful employment and/or adequate income generation to all the families below the poverty-line. Income should be adequate to satisfy the basic needs for family life and sustained at appropriate level to be determined annually. (b) To provide basic healthy environment, especially safe drinking water, disposal of excreta, housing, etc., to all the families below the poverty-line.

- Food Department: (a) To ensure supply of various groups of food required for nourishment through the public distribution system and/or any other way, to all the needy families below the poverty-line at an affordable cost. (b) To provide grains, etc., for "food for work" and such other programmes for the poor. (c) Supplementary school meals have not only become substitutes, but unfortunately the poor tend to become dependent and the basic principle of self-reliance is defeated. What is required is to provide for income generation for the poor so that they are able to buy the food they want and live with dignity.

- Department of Environmental Health and Sanitation / of Public Works and Housing: To

provide healthy housing and to ensure environmental hygiene to the poor, especially those families below the poverty-line.

- General Administration and Revenue Departments: (a) To ensure that social injustice and discrimination are undone, especially in respect of the poor. (b) To restore the rights and property unlawfully taken away from the families below the poverty-line. (c) To discourage crime and anti-social activities, by providing acceptable alternatives. These are some suggestions, but the scope is wider.

(vii) Operationalization at the grassroots should be the responsibility of the PRIs. To make it possible, it is essential to reach agreement by the Governments to ensure appropriate degree of decentralization, adequate devolution of power and authority, sufficient resource allocation to the PRIs including Gram Sabhas so that they are adequately empowered and will be able to implement effectively, monitor and review, and reach the objectives within specified time. Further, necessary supports for empowerment, training of personnel and evolving referral system.

### ***5. Immunization against the major infectious diseases of childhood —***

We already have the necessary infrastructure and facilities for this requirement. What we lack is true acceptance and participation by the people, except by middle class families. All vaccines, with exception of Oral Poliovaccine, are indigenously manufactured in adequate quantities and of good quality. We are exporting these to other countries. Our need is to do away with the vertical nature of Universal Programme of Immunization (UPI) and integrate it with the child health component of the MCH Services. Every child is given a name, likewise, immunization as a preventive measure should ultimately become a lifestyle practice in our society.

In the presently weak Public Health System overemphasis on one function/service has resulted in drastic reduction in other equally if not more important services. This should be avoided at any cost. Service can be strengthened & sustained only with good practice and working with the people. Special programmes such as Pulse Polio should be discontinued and its target of full coverage should be attained only by strengthening regular immunization as an integral item of MCH Service. We had reached 80 per cent immunization



coverage under the UPI when we launched Pulse Polio under international pressure. It would have been only a matter of time that the problem of poliomyelitis was taken care of.

#### Interventions at the Central and State levels:

(i) Health Departments should, as a part of revamping the currently dilapidated maternal and child health services, strengthen its immunization component and ensure that each infant and eligible child is fully protected at appropriate age from the childhood infections.

(ii) Health Departments in collaboration with the Departments of Education, Social Welfare, Women, Television and Broadcasting, etc., take up a massive drive and sustained IEC/Behavioural Change Programme to popularize immunization as a routine practice in infant and toddler rearing by the families. Even after several rounds of pulse-polio drives, each time special efforts and propaganda are required to get children a dose of oral polio-vaccine. Yet we need mopping operations. These superfluous efforts must come to an end as early as possible. Hence, there is a need to take people into confidence.

(iii) All departments and agencies of the Governments and the PRIs will have to be activated to do their lot for making immunization as people's programme and generating social pressure on the providing the services on time and efficiently.

#### **6. Prevention/ control of locally endemic diseases**

This element forms one of the major responsibilities of the Department of Health. Undoubtedly the situation of the control of communicable diseases in India is precarious; and the condition of public health system is moribund. Nation is repeatedly experiencing epidemics of malaria even after over four decades of the National Eradication Programme – the highest priority programmes consuming a large chunk of the total health budget. Epidemics of Dengue fever, Cholera and Gastroenteritis, Typhoid fever, Infectious hepatitis, Viral encephalitis, Kala-Azar, and Food poisoning visit us regularly in epidemic proportion in various parts of the country. Tuberculosis, our major public health problem, has remained undaunted in spite of the National Tuberculosis Control Programme for over forty-five years. This is also true of the sexually transmitted diseases (AIDS is the one). All this is really a ghastly picture; nonetheless health is not a high priority concern in India.

As a result of industrialization, socio-economic development, urbanization and changing lifestyles, India is facing a growing burden of the non-communicable diseases. The affluent & power-holding groups of people and politicians are paying attention to diseases such as coronary heart disease, high blood pressure, diabetes, cancer, etc., and in consequence national programmes have been instituted. However, these diseases are far more difficult to treat, control and prevent unless the people are willing to change habits and behaviour associated with modern lifestyle.<sup>15</sup> This subject of the control of common endemic diseases has been extensively examined & concrete recommendations are provided separately in a monograph published by the Independent Commission on Health in India.<sup>16</sup> Therefore the same will not be repeated here. Following five-point programme is suggested on the basis of the elementary principles of public health practice:

- (a) Strengthening of the general health services.
- (b) Environmental health, sanitation and hygiene programme.
- (c) Information, education and communication (IEC) campaign.
- (d) Establishment of epidemiological services.
- (e) Disease specific measures for the control and prevention of the high priority infections. This needs to be incorporated within the overall framework under the items (a) to (d) above. This assumes much importance when the vertical programmes for the control of specific disease are abolished (as proposed).

#### Interventions by the Central and State levels:

(i) Ministry of Health, Government of India, should get all the national programmes for the control of diseases evaluated and reviewed by high power expert committee of renowned epidemiologists, public health experts of high repute, experienced medical anthropologists, and health managers of high repute and get their suggestions.

(ii) As an integral part of revamping and strengthening public health system, Ministries of Health at the Centre and States should ensure the general health services are substantially improved. As a part of this exercise, undergraduate medical education needs to be reoriented to produce the basic doctors – General Practitioner (G.P.) or Family Physicians. This will necessitate virtually scrapping the current system and introduce fundamental changes in the contents and methods of training so that future G.P. doctors can play their role<sup>17</sup> satisfactorily.



(iii) All the recommendations (1 to 5) made under section 2 are valid regarding the element of environmental health, sanitation and hygiene programme, viz. establishment of a separate Ministry and Department of Environmental Health and Sanitation; alternatively, a separate Department of Environmental Health and Sanitation in the Department of Public Health Works, etc. Special attention will be necessary in regard to IEC programme and detailed under section 3.

(iv) Further, Ministries of Health at the Centre and States should realize that the current epidemiological services which are either rudimentary or ineffective. It is urgent to accord high priority to institute epidemiological services on a strong footing. This is very vital for the success of control and prevention of the common endemic diseases. The basic need is to train adequate number of competent epidemiologists. Apart from routine investigation of all epidemics and containing them, epidemiological surveillance system should be established from the grassroots – villages and cities – where information is first generated. Secondly, unless strong Epidemiology Units are in operation at the District level, State and National level organizations will neither recognize epidemic at the earliest nor prevent damage done by the epidemics.

(v) Without revamping and strengthening public health system, it will be very difficult, if not impossible to take disease specific measures for the control and prevention of the high priority infections. Such disease specific measures will assume much importance as soon as the vertical programmes for the control of specific disease are abolished. Ministries of Health at the Centre and States should, therefore, focus on the measures to strengthen the public health system.

(vi) All departments and agencies of the Governments and the PRIs in particular will have to be activated to do their lot for making prevention and control of diseases as people's programme and generate adequate social pressure on the public to bring about appropriate behavioural change in their lifestyles and make it conducive to health.

**7. Elementary care and appropriate treatment of all age groups for injury and common diseases; and 8. Education regarding health problems and the methods of preventing and controlling them –**

Even in the ideal conditions of health development, man will not be free from injuries and illnesses. Most of the injuries and common ailments

are trivial or minor in nature. Over 95 per cent of these get self-cured without any treatment. Simple home remedies provide relief. In old days, such minor ailments were taken care of through traditional remedies from 'Grandmother's pouch'. These days many people resort to self-mediation. However, the people in many of the rural and remote areas, and the poor have no access or facilities even to such elementary care or appropriate treatment. At the same time, in a small number of cases the minor ailment may be a beginning of a major disease. This situation can only be tackled by a doctor or suitably trained locally available person. In view of these situations, organized efforts are necessary to assure care of the minor ailments and injuries especially to the have-nots.

Services of the traditional healers and private practitioners of various systems of medicine are available almost everywhere. With tremendous expansion of the primary health centre complexes infrastructure in the rural areas, the facilities improved to a large extent, but failed to reach at all places. With the recommendations of the Srivastava Committee, the Community Health Workers' Scheme (later renamed as Health Guides' Scheme) was introduced. This was a correct step in right direction. However, for various reasons this innovative measure failed. Government of India has now withdrawn the scheme. Still there are several voluntary organizations that have developed alternative innovative programmes and are serving some remote, inaccessible and tribal areas.

What can be done now? With growing urbanization, development of the villages and medical practitioners moving to the rural areas, improved facilities for training of health paramedics and ancillary workers, general enlightenment, and progressive democratic decentralization, this element of primary health care is likely to be fulfilled. "A community which observes simple hygienic rules is much better off than one which is provided with free drugs, immunization service, and sanitary conveniences; for these benefits may be used indifferently or not at all because of traditional ways of lives."<sup>16</sup>

Democratic decentralization and empowerment of the Panchayati Raj Institutions and Nagar Palikas are provided for under the Constitution of India. However, both at the national and State levels, for want of adequate political will and unstinted support by the bureaucracy, decentralization is taking place very



slowly and half-heartedly. The State Governments are no better vis-à-vis the local self-governments. Variations in the process and extent of empowerment of PRIs and Gram Sabhas from States to States are very large. In general, the State authorities are reluctant to decentralize sufficiently and empower *Panchayati Raj Institutions* (PRIs). Genuine efforts have not been made to institute local governance and control. This is a major constraint in comprehensive health development and needs to be addressed urgently.

#### Interventions by the Governments and Non-Government Organizations:

(i) At the National and especially State Government levels necessary political will and motivation of the bureaucracy are essential to start with. Without this, there will be no progress. Measures are imperative for inducing the State Governments to assume their constitutional responsibility of providing public health services to the people.

(ii) Voluntary Organizations, activists and NGOs have to play significant role in developing powerful pressure groups to generate awareness among the rural population in general and local leadership in particular, about their constitutional rights and powers, how they can use these powers to solve their problems themselves, and improve their socio-economic status and the quality of life. Further, they should try to empower the PRIs and people by informing and training them comprehensively for self-governance.

(iii) The self-help groups and other grassroots organizations of the people should take the lead, activate Gram Sabhas for appropriate social actions and fight for their legitimate rights, powers and resources for development and self-reliance.

(iv) State Health Departments, with Primary Health Centre Complexes and the health staff at their command, should undertake training of village level volunteers for providing first-aid and appropriate care of minor ailments and injuries. Necessary materials may be provided to the villagers by establishing 'Health Posts' and 'Depot Holders' and/or inform them as to the manner in which the same can be obtained or purchased.

(v) Health Departments in collaboration with the Departments of Education, Social Welfare, Women, Television and Broadcasting, etc., take up a massive drive and sustained IEC, i.e., Behavioural Change Programme with a purpose of enabling the

people, self-help groups, PRIs to accept and assume their role and responsibilities in the process of democratic decentralization, help to assist towards self-reliance in health, and to take initiative and undertake social actions for comprehensive socioeconomic development of their villages, urban Wards, and the communities. Hence, there is a need to take people into confidence and promote active participation of the people. Ministry of rural Development, Government of India has set an excellent example in their exemplary monthly journal 'Kurukshetra' with its highly commendable contents and get-up.

Press, voluntary organizations, senior citizens' associations, & media can play significant role by participating in IEC efforts to enlighten people on the causes of illnesses and disease, how the common hazards to health can be recognized, the simple ways in which these ailments can be prevented and controlled, the practical ways in which health can be acquired and maintained.

#### **9. Provision of essential drugs —**

About 90 to 95 per cent of our ailments are self-limiting. Due to self-healing and regulatory powers of our body the symptoms or complaints eventually disappear. In most of the instances, relief comes within 24 to 48 hours, even without any treatment. This is the basis of the home-remedies and naturopathy. Late Shri. Morarji Desai, Ex-Prime Minister and the great exponent of naturopathy has said, "The human body is a perfect machine which can regulate itself, provided natural rules of food, work, and rest are observed. When we transgress natural rules, we create toxins in the body, which the body attempts to get rid of. This attempt (a cause of the complaints) is considered as disease and is given different names according to different symptoms. If the transgression of natural rules is set right by natural methods available to every human being complete cure is possible without any other aid." In view of this and the scientific reasoning, use of the drugs should be at minimum and for as short time as possible.

Simple herbal and other home-remedies constituted the main treatment for minor ailments for ages. They helped to cure common illnesses. Even to-day, a vast number of people manage to get relief with the so-called grandma-pouch remedies alone. Many home-remedies originate basically from Ayurveda. It is important to bear in mind that herbal, Ayurvedic, homeopathic and simple modern medicines can take care of most of the illnesses and injuries we suffer commonly.



Majority of the common ailments such as fever, pain, cough and colds, diarrhoea, etc., are the manifestations of the reactions of our body to get rid of the cause of illness, e.g., infection and fatigue. Therefore, we should not make undue haste in counteracting these protective maneuvers. During initial stages of illness, we should support the body by enduring discomfort, and overcoming the deficiencies through diet, fluid intake and rest.

Injuries of different types are common. While most of them are simple and can be managed at home, some are serious. First aid is a must in case of injuries and accidents. Open wounds should be washed immediately with soap, and plenty of water. Bleeding should be stopped by firm pressure applied locally on the wound.

Drugs do not really cure, but certainly provide early relief from symptoms if used appropriately. However, pharmaceutical advertisements, unscientific therapeutic practice by many 'doctors' & blind faith in the benefits of medicines has resulted in wide-scale irrational use of medicine, e.g., antibiotics, vitamins, so-called health and energy foods, etc. Drug Action Groups Worldwide

have done significant work in rationalizing the use of drugs. Apart from World Health Organization; the Drug Controller, Ministry of Health and Family Welfare, Government of India, has published a list of about 250 rational drugs. Separate lists of about 10 to 15 items are available for use at the primary medical care at the grassroots.

#### Interventions by the Governments, Voluntary Organizations and PRIs:

(i) Health Department and every Panchayat should develop a mechanism such as establishing 'Health Posts' and 'Depot Holders' in each village where the drugs which are essential for the care of minor ailments and injuries, are available at all times and supplies are adequate, regular and timely. Drugs should be available at affordable cost with a provision that the poor families who may not afford to buy are also taken care of.

(ii) Health Department and every Panchayat should ensure that in each village a team of individuals or Community Health Workers/Health Guides or Multipurpose Health Workers is available round the clock. As far as possible, these persons should be self-employed and should have adequate training in recognition of ailment and selection of appropriate medicine and its correct use, limitations, etc. These,

persons should be able to clearly explain villagers the nature, reasons and possible prevention of the ailments.

(iii) Health Department and every Panchayat should endeavour to establish two-way referral services with either local private medical practitioners or the Medical Officer in charge of the nearest Primary Health Centre, because it is not very rare that the minor ailments may be a beginning of a serious disease, and should not be neglected. Home remedies are also not recommended whenever the symptoms are severe or multiple, or the symptoms recur frequently, or there is a known underlying disease causing the ailments. The home remedies generally give relief within 24 to 48 hours. If there is no relief or recovery even after waiting for 72 hours, the outer limit of home care is over. Referral to a doctor is a must. Health Department and every Panchayat should ensure that the grassroots providers of the care of minor ailments are trained to recognize the limitations and contraindications of the remedies at their disposal and are able to judge and refer the sick without any delay to the nearest doctor as recognized for the purpose by the Panchayat, or other authority.

(iv) Health Department may assist the PRI for procuring reliable good quality supply of drugs, dressing materials, home nursing appliances, etc., at minimum cost to the PRIs. Similarly the drugs supplied free under the national disease control programmes should be adequately stocked at the 'Health Posts' and 'Depot Holders' in all the villages.

(v) Feasibility of health insurance as providence should be considered. Endeavour should be made for covering the poor people as well.

#### **10. *Who bells the cat?***

It is obvious and explicit from the preceding assessment and stipulating responsibilities, which most of the interventions required under the primary health care approach to provide Health For All, are clearly outside the jurisdiction of the Ministries and Departments of Health at the Centre and States. At the same time, health authorities cannot do away with their constitutional and legal responsibility for providing public health services to the people. It is here that their advocacy, collaboration and cooperative roles with all other development sectors assume great significance and becomes mandatory prerequisite and pursuit.



Experience has shown that the task inter-sectoral development and inter-ministerial and inter-departmental cooperation and collaboration remained largely undone. This was one of the reasons of national failure to provide Health For All by 200 A.D. Therefore, this concern needs careful and threadbare consideration and consultations. An effective mechanism will have to be evolved under the Prime-Minister's Office at the Centre and Chief Minister's Offices in the States to overview activities, programme implementation and performance and ensure smooth operation and required performance by all the respective segments of the Governments and PRIs.

### **(B) Operational – From Public Administration to Business Management**

**1. High Power Consultation:** Prime Minister's Office (PMO) should conduct meeting of the public healthy specialists and experts from other health related sectors, a group of 10-15, to debate on the areas and ways in which the public health system in India should be strengthened with a clear-cut objective of providing Health For All through

Primary Health Care Approach. Items such as the role of public health, training of public health specialists and superspecialists, restructuring organizational setup, placing people's health in their hands, resource mobilization, etc., should be deliberated. About five of these members should serve as consultants and reviewers for PMO on regular basis.

**2. Convening a National Consultation:** National Convention should be organized with the specific objective to obtain unequivocal national commitment and willingness to take initiatives for embarking on "*Operation Public Health*" with determination that the public health system in India becomes strong enough to provide good health to the 'have-nots', accelerate health promotion, and reduce disparities and distortions substantially, if not eliminated. Detail background materials should be provided in advance and agenda of the meeting should cover all the issues, analysis, suggestions and solutions mentioned earlier in this paper. Outcome should be necessary authorization, policy decisions, funding and pledge to strengthen public health system and make it work efficiently. It is best to initiate this in a specially convened joint Meeting of the Central Councils of Health and of Family Welfare. This should be followed by broad-based consultation meetings for directives. Apart from the Secretaries of various Ministries and

Directorates, participants should include public health experts and epidemiologists, other multidisciplinary and multi-sectoral experts, and representatives of local bodies, and public and voluntary sectors.

Follow-up actions are essential and should be initiated soon and sustained. The main purpose is to ensure that the State and UT Governments act adequately, properly and swiftly. Monitoring is essential and mid-term changes, if indicated, should be made. Technical, educational, material and financial supports should be provided on time.

All this exercise is not only very demanding task, but also involves technical, social and managerial issues. This may be beyond the regular administration. In view of this and the importance of the task, special high-power expert panel of public health specialists, epidemiologists, and good executive managers should be set-up at the national level. It may be noted that no follow-up actions emerged subsequent to Kolkata Declaration and Agra Agreement. It is essential to activate the process expeditiously.

**3. Follow-up State and Union Territory level Consultations:** Organization, objectives, and agenda should be on the same lines as that for the national consultation. But this has to be State/U.T. specific. Participation in the consultation meetings should be broad-based. The most important participants are from various levels of PRIs, Nagar Palikas and other local-bodies, and representatives from public and voluntary sectors. It is essential that active participation is to be maximized. For this purpose, such preparatory meetings should be held at several levels — State, Region, District, Taluk, and various PRIs. Appropriate changes in organizational setup should be taken up simultaneously.

Follow-up actions are essential and should be initiated soon and sustained. The main purpose is to ensure that the Regional and District level administration, PRIs and Nagar Palikas initiate implementation and manages the interventions efficiently and effectively. Monitoring is essential and mid-term changes, if indicated, should be made. Technical, educational, material and financial supports should be provided on time.

All this exercise is not only very demanding task, but also involves technical, social and managerial issues. This may be beyond the regular administration. In view of this and the



importance of the task, special high-power expert panel of public health specialists, epidemiologists, and good executive managers should be set-up at the State and district levels. It is essential to activate the process expeditiously.

#### 4. *Fulfilling the Requisites:*

**(a) Strengthening Public Health System** – Details are to be worked-out according to our national perspective and taking into account the realities and factors identified under section 4.01 to 4.17. Following are the challenges to all those who are keen to revive and revitalize public health discipline and strengthen public health system so that the dream of Health For All turns a reality in near future. Epidemiology is the essence of practice of public health. This basic discipline should be given the lead and professional training of epidemiologists should get highest priority. Without this, it will not be possible to establish proficient epidemiology services. A new role of epidemiology is to take science from the academia and laboratories to the people. Without epidemiology, practice of public health is like driving a car by a blind person.

A minimum packet for strengthening public health system is suggested here. When the order is tall, commitment is limited and solutions are overwhelming, it is best to begin with a packet of minimum essential items and gain confidence and credibility. A packet containing feasible moves suitable for India is as follows:

**(i) Reorganize Health Ministries and Departments at the Central and State levels, and establish separate Department of Public Health:** Appropriately reorganize, modernize and keep the new department trim for efficiency. This an important step in restructuring of the Administrative Setup of Health Services – Separation of public health (including primary health care) services from the hospital services for the secondary and tertiary medical care is indispensable. The new public health department should fully decentralize its activities. Delivery of public health services to district and sub-district level should be brought into the full control of the local self-governments in rural (*Zilla Parishad*) and urban (municipality/*palika*) areas. It may be noted that in Sri Lanka, public health and medical services are separate; and its health status is well above that of India.

New Department of Environmental Health should be established on priority basis. The

subject of restructuring the administrative setup has been considered in a separate chapter in details and recommendations are also available.<sup>18</sup>

**(ii) Establish a separate Cadre of Indian Health Service (IHS):** It is important to ensure attracting best medical graduates for public health practice and management by establishing Indian Health Service on par with the IAS cadre. This will provide career development and authority. Indian health service should be a separate cadre. The Central Health Service (CHS) cadre should be responsible only for the union territories and Central Government institutions. As a first step, it is imperative to strengthen and reform public health education, training, and research, supported by networking of institutions. The Expert Committee on Public Health System (Bajaj Committee)<sup>19</sup> has reiterated the setting up of a chain of Schools of Public Health of high standard for training of specialists and superspecialists in public health. Selected first few batch postgraduates should undergo specially designed training locally or partly abroad so that in about two years a critical mass of young HIS Public Health Officers will be available, who can take over the responsibility of health management in the state and central ministries, and provide faculty for the new schools of public health, can be produced. In the mean time, we can hand-pick some of our experts and try to orient the present health managers in basic public health practices.

**(iii) Quality leadership is essential for progress and development:** Ensure that at the Central and State Health Ministries and Departments the Director General/Director and persons appointed as top level managers are duly qualified in public health and carry a good record of performance and leadership. Indisputable fact is that most of the failures and short-comings are because of poor management. What is required is performance and showing results. Function of health management is to facilitate development and utilization of health care services and facilities which should provide promotive, preventive and restorative programmes to all people, especially the poor. An efficient cadre of health officers, who are knowledgeable, motivated, willing, skilled and innovative and trained in public health management, is the most urgent need of India. This is the most limiting factor in strengthening public health system.

**(iv) Strengthen judiciously selected scientific and technical public health institutions** such as the All India Institute of Hygiene and Public Health,



Calcutta, by upgrading them to a level of schools of public health, the Centre for Diseases Control, etc., and bring them at the level of performance of health institutes in the developed countries in North America and Europe. The Government of India has decided to establish six All India Institutes of medical Sciences in the country; whereas our urgent need is to have six to eight Schools of Public Health.<sup>19</sup> For optimal functioning, the public health institutions should be given autonomy. Director should be an undisputed expert, competent and tactful administrator, and able to provide leadership and direction.

**(v) Build Health Systems Research (HSR) as an inherent component of health management and administration:** New programme, intervention, innovation, etc., should be tested adequately and scientifically for efficacy, appropriateness and feasibility, before they are accepted and introduced. Multiple solutions, alternatives and details of their contents should be worked out so as to ensure success, satisfaction and effectiveness in different communities, places and situations. This is vital because of diversity and social and epidemiological variations one comes across in different States and districts in India. Secondly, community-based and adequately large demonstration projects are necessary to effect large-scale application of epidemiological, biomedical, behavioural and anthropo-logical knowledge ending in a national public health programme.

It is essential to validate biomedical and innovative ideas and interventions by the locally designed programmes. Their feasibility, efficacy efficiency and cost-benefits should be established. Further validation is essential for wider application, if the interventions are to be extended to cover larger areas or in diverse demographic, socio-economic, epidemiological and socio-cultural situations. It is because of failure to realize these basic realities, lack of ethnography and in-depth understanding, the international organizations and (pseudo)experts impose interventions such as DOT (Direct Supervised Treatment) in tuberculosis control, promotion of condom for HIV/AIDS control and impregnated mosquito-nets for the control of malaria, universally. Interventions based on scientific knowledge alone may not be effective in a country like India unless local cultural milieu, value system and practices which always interact, are given due consideration through HSR. Holistic view has to be taken and systemic changes are to be predicted.

**(vi) Initiate massive drive for IEC for comprehensive health development** with an objective of making people, especially the have-nots, self-reliant in health and related matters. Without participation of the people, no development can take place in health. Two of the principal objectives of the public health services are: (a) to modify behaviour of the people with a view to alter lifestyles which risk individual health and well-being, and (b) to modify socio-political behaviours and consumer choice to achieve environmental changes that are conducive to better health. Social action is an outcome of reaction and response of a group of people or a community in a given problem situation and time.<sup>19</sup> Therefore, it is mandatory to make the people understand the looming dangers to their health.<sup>21</sup> We should abandon the alien ideas of sex education in the school and incorporate our traditional codes of conducts as a part of curricula of the formal school education.

Behaviour, both individual and community, and community organization are the limiting factors influencing social action in relation to health development. The health related behaviour of the people, and health-conducive life-style can be effected by informing and educating the people, setting examples, and generating a critical mass of health consciousness among the common people. Massive IEC (information, education and communication) drive is necessary to make people aware of various health hazards and simple ways of taking care of the common risks. In traditional, plural and diverse Indian societies, this is indeed a very big challenge. The efforts shall have to be continuous and innovative. The community organizers form a vital element for mobilizing human resource. Without them, the target population cannot be activated to function. In industries, labour organizations have demonstrated what can be achieved by the organized sector of a society. If the target population could be so organized, the task of the health system will be much easy.

**(vii) Strengthen Panchayati Raj Institutions** by way of total decentralization of primary health care (in phases) in a time-bound process, devolution of powers and authority, adequate funding, etc. Community participation should be promoted by encouraging and organizing autonomous groups of people sharing common interests in improving their health status by trying out within their own resources. Such groups should have power to take major decisions for local activities and control over health functionaries. The 73<sup>rd</sup> & 74<sup>th</sup> Constitutional



Amendment Acts of 1992 have provided an excellent framework for democratic decentralization for active involvement of the people through the *Panchayati Raj* institutions and small *Nagar Palikas* (municipalities) in all development programmes including public health, sanitation, etc. A genuine and faithful process of decentralization, devolution of authority, transfer of adequate funds and financial powers, technical support, etc., on the part of the Government are now necessary. Democratic decentralization, if effectively operative, improves the situation as the statistics in Table 4 show. Village/area planning should be based on local epidemiological and social priorities. With area specific decentralized planning, development can be accelerated and disparities reduced. However, decentralization has to be adequate, effectual and duly supported by empowerment of the people, requisite authority, finance and technical assistance, etc. Primary health complexes should function under *Panchayati Raj* structure. Involvement of the Central and State Governments should be minimum and catalytic. The essence of community participation is to realize its vital significance. The need is to empower and activate *Gram Sabhas*. After all, all the people make their own decisions and act to better their lives. It is best to learn from the people and help them.

(viii) **Coordinate with medical department and medical colleges** so that present medical education is modified so as to produce General Practitioners. The topic of reorganization of medical education to train a need-based and community-oriented doctor, is been discussed for decades without any significant change. This has to be taken seriously so that the practicing doctors, both privately and in public service, treat and cure patients of all kinds so that the public health programmes are no longer required to include treatment of disease as a part of disease control. In this way our general health service will get strengthened. Incidentally, in the developed world, patients of tuberculosis, malaria and all other common diseases and ailments are treated by all practicing doctors. As envisaged in the primary health care approach, all minor ailments and injuries, and many of the common diseases will have to be managed at individual and family level. This will take care of 80 to 90 per cent of the illnesses, if not more. Of the balance of conditions, 10 to 15 per cent are to be treated by the general medical practitioners.

(ix) **Constitute a team of consultants and advisors** consisting of renowned public health

experts, epidemiologists and executive managers to: (a) advise governments and local bodies on health policy, programmes and research, (b) review all national programmes for disease control and prevention and of health promotion, (c) determine priorities, (d) review and assess public health service programmes, and (e) promote intersectoral activities.

(x) **Initiate intersectoral dialogue and programmes** for promotion of environmental health, making lifestyles conducive to health, welfare of women and children, care of the disabled and handicapped, nutrition security, urban health and slum improvement, human settlements and housing, industrial and occupational safety, sports and leisure-time activities, poverty alleviation. Poverty is associated with deprivation and social injustice, and has to be recognized as both a cause and the effect of ill-health. Micro-planning and interventions should aim at the basic issues of alleviation of poverty; land reforms; guaranteeing basic human needs like shelter, security, food, safe water, education and employment; and elimination of social injustice. Therefore, launching of poverty alleviation programme with intersectoral coordination becomes an inevitable element of strengthening public health system. Most of the rural population, and the slum dwellers and other underprivileged people in the urban areas, have poor levels of health because they are under-nourished, suffer from infections and infestations, live in unhygienic conditions in unhealthy environment, are ignorant of health and other health related matters, are not aware of various health hazards they are exposed to, fail to utilize health and other services fully, have harmful habits, have large families, and generally live in a way that is not conducive to health. Further, these people are economically poor and corrective measures are far beyond their resources in many ways. It is essential to deal effectively and immediately with all the factors that are responsible for the poor state of our people. Concentrating on "Have-nots", may imply some disadvantage to the "Haves". For this, political will should be very strong and the health administrators should be highly efficient and determined.<sup>21</sup> A simple way of starting is: (a) Gram Sabhas and Urban Ward Committees are required to identify the families below poverty line. This will be the most realistic and dependable exercise. (b) These families are issued a special card of eligibility for exclusive benefits. The cards should be valid for five years, revised thereafter. (c) PDS should serve only these card holders for comprehensive supplies at low cost. (d) The



children and uneducated adults should be provided for general education, vocational training and income-generation avenues. Through this uplift and ability to pay for their basic life-needs should be ensured. (e) Employment can be enhanced by making it obligatory for the government and public sectors establishment to fill up vacancies with the special card holders, providing at least for one person from a poor family. Private sector should be encouraged to do this by declaring full expenses on account of emoluments paid to the card-holders, tax-free. We can add to the list.

“It is recognized that health is impacted by policies and practices in other sectors, not just the obvious ones of Nutrition and Education, but also Housing, Industry, Public Works, Water and Sanitation, etc.”<sup>13</sup> Strong advocacy and dialogue with these sectors on the part of public health sector is indispensable and imperative.

The NGOs, voluntary organizations and every government agency shall have to come together for a common cause. Both the government and the private sectors have to realize that none left to itself, can ever bring about health development and improve the quality of life of the people. Issues facing the government and the NGOs are to be resolved.

#### **(b) Financing:**

Without adequate finance, strengthening of public health system will not be possible. About 10 to 15 per cent of the GNP is to be provided for public health system. Expenditures in public health are being considered as consumptive; this judgment should be changed and expenditure on public health is taken an investment. Eighty per cent of the funds should be provided to the local self-governments for primary health care to the common people. Free service, if at all, should be strictly restricted to the families below the poverty-line. Linked with micro-finance, the Self Help Groups (SHGs) strategy is effective for poverty alleviation. The challenge is to boost economic development of the poor through credit facilities.<sup>23</sup>

However, extra funding by itself will not improve performance in absence of good governance. The BIMARU and some other States have done poorly not only in health but also in other developmental sectors. These States are not able to use budgetary provision fully, spend less and; there are delays in implementation of programmes with unspent funds on hand.<sup>13</sup> The

solution in such cases is obviously not just to inject funds through a weak system which cannot effectively spend existing budgets.<sup>13</sup> Serious attention is necessary to improve governance through effective management and accountability at all levels from the top to the grassroots.

As regards globalization and economic liberalization, economic reforms are expected to eventually lead to faster rate of economic growth, and contribute to poverty alleviation. However, it may be noted that the ‘trickle down’ theory to mitigate poverty, has failed in practice. In fact, the rural poor are being commercially exploited by modern aggressive marketing techniques and the poor spend wastefully on ‘tonics’ and ‘energy foods’, irrational medicines, soft drinks, cosmetics, etc. Care should be taken to ensure that Public health sector is protected from the adverse impact of globalization. Structural adjustments should not result in reduction of the operative and capital health expenditures.

Given the current public health situation (MMR of 400-500, childhood diarrhoea continue to kill) the repeated mention of ‘health tourism’ is highly inappropriate.<sup>13</sup> ECTA Discussion Papers 2001/ 13 clearly indicate the drawbacks and potential dangers.<sup>13</sup>

#### **Summing Up:**

The aim of Health For All, with a view to attaining a level of health that will enable every individual to lead a socially and economically productive life, is still valid for the current century. Our efforts need to be revived for health development as an integral part of socio-economic development of the nation. In our leap into the twenty-first century, it is for us to respond, respond for the benefit and welfare of our people. Adjunct to those in the Calcutta Declaration on Public Health, other chief strategies are:

1. To Rejuvenate public health system by Initiating “*Operation Public Health*” with determination that the public health system in India becomes strong enough to provide good health to the ‘have-nots’, accelerate health promotion, and reduce disparities substantially, if not eliminated. It should address the challenges posed by rampant ill-health and simultaneously promote health development. The issues related to poverty, equity, ethics, quality, social justice, environment, rural and urban development and globalization will have to be attended despite limitations.



2. To ensure appointments of Health Directors and other top level managers who are qualified experts in public health and have good record of competence, performance and quality leadership. To create career structures at national, State, and district levels for promoting health of the population by establishing Indian Health Services Cadre (IHS) on par with that of IAS.

3. To reorganize the Health Ministries and Departments; and to decentralization and bring the delivery of public health services to district and sub-district level under the full control of the *Panchayati Raj Institutions*. To Change the policy of serving individual patients and communities to that of universal coverage of health services, especially to the poor and underprivileged.

4. "Public Administration" or bureaucracy without accountability should be amended and give way to "Businesslike Management" with efficiency and optimum performance. To change health services and manpower policies from purely physician-oriented to multi-disciplinary and people-oriented.

5. Initiate intersectoral dialogue and programmes for promotion of environmental health, poverty alleviation, making lifestyles conducive to health, welfare of women and children, care of the disabled, nutrition security, occupational safety, healthy housing, recreation and sports, etc.

6. To change health training and research objectives so that the system will be able to deal with scientific, technological, managerial and educational problems. To develop network of institutions and the use of information technology and electronics for improving human resources development.

7. People's health should be placed in their hands. There is still an unwillingness to let local communities work out themselves the best balance between curative services, preventive public health activities, and population control, and on over-reliance upon fulfilling norms and priorities set centrally.<sup>12</sup> This attitude should be discarded. For this, initiate massive IEC drive and training for empowering people with an objective of (a) ensuring efficient governance at the district level down to the grassroots *Gram Sabhas*, and (b) making the 'have-nots' and the underprivileged self-reliant in health care. There is neither certain

way nor easy approach of ensuring community participation. Transparent sincerity of purpose on the part of 'outsiders' is essential. It is a complex issue and best tactic would be to work with the people, support local decisions and interests, learn from them, and help them to solve their problems.

Across-the-board commitment and health initiative are the foremost; and we have a long list of unfinished agenda. That's why 'Strong commitment and resolution by the nation are necessary. There is no substitute for unblemished and skillful leadership. Apart from having the competent and knowledgeable persons with good track record on the top managerial posts, there is need to utilize a team of health professionals drawn from different fields and private sector. It is also essential that the senior health officers at the district level should have core knowledge and skills in public health. They should be competent managers with concern for quality and aptitude for health systems research. Effective decentralization, and empowerment of people and making them self-reliant are important issues. For the best effect, start to improve the health of the worst off in the society and to remove disparities. With due attention to the factors which lead to weakening and virtual disintegration of the public health system, 'operation public health' can be initiated with determination that the public health system in India becomes strong enough to provide health for all, accelerate health promotion, and reduce disparities substantially, if not eliminated. The Tenth Five-Year-Plan recognizes decentralization and empowerment of the people. We have to put a step forward, may be by preparation of a national and State specific bottom-up action-plans for health promotion and improvement in the quality of life of people.'<sup>24</sup>

### Any Conclusions ?

Yes! On the front of biological warfare, our public health system is providing continuous fodder to the five cannons of diarrhoea, pneumonia, tuberculosis, anaemia and malaria; and also to many smaller guns. In chorus, on technological warfare, the system is embroidering 'diagnostic' on a worn-out fabric and embellishing 'intensive care' death. What a drama – farce or tragedy? We have to decide unequivocally and act. Solutions are there to make the moribund public health system work, provided there is willpower.



## References:

1. Deodhar, N.S., Twenty-first Century Public Health in the South-East Asia Region, in particular India, ICHI, New Delhi, 2002, (based on a concept paper prepared for the World Health Organization, South-East Asia Region, New Delhi, as a follow-up activity to WHO Regional Conference on Public Health in South-East Asia in the 21<sup>st</sup> Century, Calcutta, November 1999, and Joint National Conference of Indian Public Health Association, Indian Association of Epidemiologists, and Indian Society for Malaria and other Communicable Diseases, 10-12 March, 200, Agra.)
2. Ministry of Health and family Welfare, Health Information of India, 97-98. Min. H&FW, GoI, and Rajya Sabha Unstarred Question No. 371, 04-03-2002.
3. Deodhar, N.S., What went wrong with public health in India, *Journal of Health and Population in Developing Countries*, School of Public Health, University of North Carolina, USA, 3 (1): 91-98, Summer 2000.
4. World Health Organization, Public Health in South-East Asia in 21<sup>st</sup> Century, Report and Recommendations of the Regional Conference, WHO, SEARO, New Delhi, March 2000, pp 37-39.
5. Deodhar, N.S., Address: Regional Conference on Public Health in South-East Asia in the 21<sup>st</sup> Century, WHO, SEARO, Calcutta, 22-24 November 1999; Public Health in South-East Asia in the 21<sup>st</sup> Century, Report and Recommendations of the Regional Conference, WHO, SEARO, New Delhi, March 2000 pp 37-39.
6. Deodhar, N.S., Critical Appraisal of Failures of Public Health System in India, Address at the Regional Conference on Public Health in South-East Asia in the 21<sup>st</sup> Century, World Health Organization, SEARO, Hotel Taj Bengal, Calcutta.
7. Deodhar, N.S., Primary Health Care in India, *Journal of Public Health Policy*, 3 : 76-99, March 1982.
8. Deodhar, N.S., Public Health Institutions and Public Health System in India, background papers, the Independent Commission on Health in India, New Delhi, pp 16, 1995.
9. Deodhar, N.S., Role of NGOs and Private Sector in Health Care Delivery, Supplementary Paper for National Seminar, ICSSR/ICMR Joint Panel on Health, New Delhi, 1996.
10. Deodhar, N.S., Paper, National Seminar on "Status of Health Care in India", ICSSR/ICMR Joint Panel on Health, New Delhi, 9-10 March 1999.
11. Perrin Karan (Kay), and Dejoy Sharon, Abstinence – Only Education: How We Got Here and Where We're Going, *Journal of Public Health Policy*, 24(3/4), pp 445-459, 2003.
12. World Health Organization, SEARO, Public Health in South-East Asia in the 21<sup>st</sup> Century, Report and recommendations of the Regional Conference, Kolkata, 22-24 November 1999, New Delhi, 2000.
13. European Commission, The Crucial Role of Public Health in Relation to reform in India, Government of India, Department of Family Welfare, ECTA Discussion Papers 2001/13, September 2001 and 2001/14, October 2001.
14. M.S. Swaminathan Research Foundation and World Food programme, The Indian Express, Pune, 6<sup>th</sup> February 2004.
15. Adranvala, J.K., Basic Preventive and Social Medicine, Ed., Deodhar, N.S. and Adranvala, J.K., G.Y. Rane Prakashan, Pune, 1971, Chapter III, Health, the Factors Determining It, pp 30-31.
16. Deodhar, N.S., Health Situation in India: 2001, with special reference to the control of communicable diseases, from the Detail Report of The Independent Commission on Health in India, Voluntary Health Association of India, New Delhi, June 2001.
17. Deodhar, N.S., Rationalizing General Practice of Medicine, Key-Note Address, Integrated Health Policy, Vivekanand Medical Research Centre, Latur, Maharashtra, 27<sup>th</sup> June 2003.
18. Deodhar, N.S., Renovation of Organizational Structure of the Health Services, pp 33, background paper prepared for the Independent Commission on Health in India, New Delhi, 1995.
19. Ministry of Health & Family Welfare, Government of India, Report of the Expert Committee on Comprehensive Review of Public Health System in India and Recommend Strengthening, New Delhi, pp 246, May 1996.
20. Deodhar, N.S., Social Action in the Field of Health Care, South-East Asia Seminar on Social Dimensions of Health Care and Health Policy, NIHF, New Delhi, 16-19 March 1992.
21. Werner David, The Alma Ata Declaration and the Goal of 'Health For All', 25 years later: keeping the dream alive, *Health For Millions*, Oct 2003 – January 2004, pp 22-25.
22. Public Health System in India: Making It Work, Key-Note Address, Joint National Conference of Indian Public Health Association, Indian Association of Epidemiologists and Indian Society for Malaria and Other Communicable Diseases, Agra, 10-12 March 2000.
23. Editorial, Rural Credit Scenario in India, Self Help Groups: Empowering people, Kurukshetra, A Journal on Rural Development, Ministry of Rural Development, Govt. of India, 52(4), February 2004.
24. Deodhar, N.S., Health in Retrospect – Lessons and Concerns, *Indian Association of Social Science Institutions Quarterly*, 16 (1): 87-99, July-September 1997.

## Bibliography:

1. Datta, Gouri Pada, On draft National Health Policy, 1999, paper for debate, Calcutta.
2. David Werner, El Sanders, et al, Questioning the Solutions : The Politics of Primary Health Care and Child Survival, Health Wrights, USA, 1997.
3. Deodhar, NS, Health in Retrospect - Lessons and Concerns, *Indian Association of Social Science Institutions Quarterly*, 16(1) : 87-99, July-September 1997.
4. Deodhar, N.S., Primary Health Care : Achievements, Problems and Prospects, National Seminar on Public Health in India : Five Decades, A commemorative volume on the occasion of 50th Anniversary of India's Independence, Ed. Nath, K.J., All India Institute of Hygiene and Public Health, Calcutta, Volume I : 36-52, August 1998.
5. Deodhar, N.S., Rural Health: Policy and Management Perspectives, Foundation Day Workshop on Basic Rural Infrastructure and Services for Improved Quality of Life, National Institute of Rural Development, Hyderabad, Volume I : 117-143, November 1998.



6. Deodhar, N.S., Status of Public Health and Development of Health delivery System in India, National Workshop (July 1998) on Health and Family Welfare Development in Independent India : A Critique and Future Directions, National Institute of Health and Family Welfare, New Delhi, Volume I : 147-170, March 1999.
7. Joint Study Group of ICSSR and ICMR, Report on Health For All, An Alternate Strategy, Indian Council of Social Science Research and Indian Council of Medical Research, New Delhi, 1981.
8. Report of the Independent Commission on Health in India, Voluntary Health Association of India, New Delhi, 1998.
9. Deshpande Haima, TB lurks in the shadow of Hepatitis-B, The Indian Express, Pune, 22nd September, 2000.
10. James A., Getting them lend hands, Health Action, 5 (1): 25, January 1992.
11. Deodhar, N.S., Science and Appropriate Technology for Health Services, Health and Development, Indian Society of Health Administrators, Bangalore, III: 1-15, January 1990. Also presented at XI International Scientific Meeting of the IEA, Los Angeles, U.S.A., 6-9 August 1990. Indian Journal of Community Medicine, xvii (1) : 26-32, January-March 1992.
12. Deodhar, N.S., Social Actions for Health Care, South-East Asia Seminar on Social Dimensions of Health Care and Health Policy, NIHFV, New Delhi, 16-19 March 1992. Also Abstracts, and presentation, XIII Scientific Meeting of the International Epidemiological Association, Sydney, Australia, September 1993.
13. Ministry of Rural development, Government of India, Basic Minimum Services in Rural India, Kurukshetra, A Journal on Rural development, **50(12)**, Annual Issue, October 2002.

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## 2. Revamping Existing Governmental Health Infrastructure for Primary Health Care

**Introduction:** The need for change is clear from the recommendations of several committees, and the first national health policy statement upholds reorganization of the existing health system setup. Some of these opinions are critically reviewed below:

*National Planning Committee* – In 1940, a sub-committee of National Planning Committee setup by the Indian National Congress, recommended training of Health Workers and providing one for 1,000 rural population. The cornerstone of their planning was clearly “Health Worker”.

*Bhore Committee Report* – Report of the Health Survey and Development Committee, 1947, summarized that the low state of public health, as reflected in the high mortality and morbidity, particularly among mothers and children, was preventable, and was mainly due to absence of environmental hygiene, adequate preventive and curative health services, adequate nutrition, and intelligent cooperation from the people themselves. Other set of causes were poverty, illiteracy, unemployment, the low state of women, and early marriages. High incidence of communicable diseases was attributed to insanitary conditions in the urban and rural areas, total inadequacy of sanitation – provision of protected water supply and drainage, insufficient and unbalanced food, and low coverage and poor quality of the health services.

The Committee recommended that health programmes must lay special emphasis on preventive work; and that health consciousness among the people should be stimulated. Even for the control of communicable diseases, the Bhore Committee laid emphasis on development of strong organization and infrastructure of the *public health services*. Even after the lapse of 47 years, the Bhore Committee’s findings and recommendations still hold good today in 2004. Development of strong public health services with competent organization and appropriate infrastructure was the primary need, but this has been neglected. There has been very wide expansion of the services, but it has remained very weak, of low quality, and without much credibility with the people. It is because this disregard and neglect to build efficient

public health services, national disease control programmes have failed. Epidemics of cholera, infectious hepatitis, typhoid fever, food poisoning, malaria, Kala-azar, etc., are not uncommon. Our pre-occupation and obsession with contraceptive-based family planning programme has devalued the public health services and weakened the basic services like the maternal and child health care. Further, the highly potential infrastructure reforms, viz., the Multi-purpose Health Workers’ Scheme and the Community Health Workers’ Programme have failed so badly that it is almost impossible to salvage them. The urgent need is that the organization and functioning of the Health and Medical Services require thorough reappraisal.

*National Health Policy Statement*<sup>1</sup> of 1983 – The policy statement is forthright in analyzing existing situation then and gave a gloomy picture of public health in India. It blames almost wholesale adoption of the Western models which are inappropriate & irrelevant. It stated that the hospital-based, disease and curative-oriented approach was at the cost of providing comprehensive primary health care. Continued higher emphasis on proliferation of hospitals has led to the neglect of the preventive, promotive and public health aspects of health care. Excessive centralization at national level has resulted in dependency and State Governments are not willing to assume constitutional responsibility of providing public health services. The States, instead of strengthening, the capacity of the people to cope with their basic health problems, kept them weak and powerless. The national health policy of 1983 acknowledged the very urgent necessity of restructuring the health services and provided broad guidelines. These are reproduced below:

(a) To provide a well disbursed network of services which takes into account the fact that a large majority of health functions can be effectively handled & resolved by the people themselves, with organized support of the volunteers, auxiliaries, paramedical and adequately trained multipurpose workers of various grades of skill and competence.

(b) Large scale transfer of knowledge, technologies and simple skills to health volunteers, selected by the community and enjoying people’s confidence.



(c) Positive efforts to build up self-reliance and effective community participation.

(d) Backup support is provided through the establishment of a well worked out referral system at “the various levels of organizational setup nearest to the community”.

(e) Establishing a nation-wide strong network of sanitary-cum-epidemiological stations to tackle the entire range of poor health conditions on a wide front.

(f) Full utilization of un-trapped resources by encouraging the practice by the private medical professionals, increased investment by non-governmental agencies in establishing curative centres, and by offering organized logistical, financial and technical support to the voluntary agencies active in health field.

(g) The policy emphasizes the need for problem-oriented operational research.

However, the health policy contained little in the form of policy guidelines to bring about necessary basic changes in the organizational setup and health administrative systems at various levels.<sup>2</sup> There were no policy guidelines to ensure that the cadre structures, both at the Union as well as State levels, were developed in such a way that key positions in public health were filled by good managers who had required interdisciplinary competence to adopt an epidemiological approach to extend the outreach of public health services to the unserved and the underserved.<sup>2</sup> There was also no policy directives to deal with the regional gross imbalances.

With is backdrop, the question is what next? Main reason for the inaction was the lack of concern, insight and appreciation of public health problems among the district, State and Central level top bureaucrats and senior medical administrators belonging to the curative disciplines.<sup>2</sup> It is hoped that with the recent national commitment for decentralization and strengthening the *Panchayati Raj Institutions*, and resultant public pressure and demands, there would be no retreat.

### **Restructuring Organizational Setup of Health Services:**

Health services organization requires to be restructured because it has become inappropriate to direct and manage the highly technical, inter-

dependent and intricate public health problems. Some how, the system does not encourage efficient management. It has failed to muster active involvement and participation of the people in achieving the national goal of Health For All through primary health care approach.

Health status of the people is determined fundamentally by environment, nutrition and lifestyle. Health managers have to tackle these issues effectively and in integrated manner. In obsession with the vertical health programmes, development of General Health Services was affected adversely. Incompetence of general health services and its lack of credibility with the common people are major constraints in placing people's health in their own hands. It is another reason that necessitates appropriate restructuring the organizational setup of the health services system.

Organizational structure will be considered in three broad captions, viz. (A) services administration and management, (B) education and training, and (C) research.

### **(A) Services Administration and Management –**

This item of organizational structure was considered in great details by the Ministry of Health and Family Welfare, Government of India.<sup>3</sup> The present organizational set-up was reviewed and several useful recommendations were made. But the recommended reforms have remained ignored. Primary Health Complexes functioning as dispensaries for medical relief (of poor quality), rather than providing integrated curative, preventive and promotive health care to the rural population. The vertical National programmes for the control of malaria, tuberculosis, leprosy, etc., are without any coordination between them and the Primary Health Centres. The overall performance is below expectation on all fronts. The community level organization has failed to provide the basic health needs of the rural population.<sup>3</sup>

The report recorded that the urban poor and slum dwellers were in as much need of primary health care as the rural and tribal population. It is noted that a vast net-work of the health infrastructure has been built up so far and as such it would be unwise to make any drastic departure and suggest a new set-up. It was considered possible to revamp the infrastructure already established and make it fit to suit future needs. In vast country like India, it would not be possible and wise to stick to a pattern. Any proposal for modifying the health



organization should always have enough flexibility for adaptation in different and widely varying regions of the country.<sup>3</sup>

The report recognized that there was absolute need to reorganize the Directorate General of Health Services, State Directorates of health Services, and the District Health Organizations to provide effective management and leadership. Secondly, it suggested delegation of adequate financial and administrative powers to community organizations so that they are able to shoulder the assigned responsibility for Primary Health Care.

**Recommended Organizational Structure at different levels of Health Services:** Many useful suggestions were offered by the Report of the Subcommittee.<sup>3</sup> The same have been taken into consideration while devising the recommendations. According to the modern concept, the organizational setup should be broadly divided into three categories: (a) *Primary Health Care* – This is a new version of public health. (b) *Secondary Health Care* – This is a medical relief by the clinical specialists. (c) *Tertiary Health Care* – This is sophisticated cure by super-specialists.

**(a) Primary Health Care:** This is the basic need of the people and organization will be essentially at the sub-district level management. It should become an integral part of the Panchayati Raj structure and management. Thus, reorganization of the sub-district health systems should be a priority, if our objective is to provide basic health needs to the people. This should be the thrust and main focus of the mission. This has to be well planned and specifically adopted to the unmet needs of different types of common people who live under diverse conditions in the villages and slums of various States and Union Territories.

Further, health is the State subject and involvement of the Central Government should be at best minimum and catalytic. Apart from other supports, at least 80 per cent of the central fiscal assistance and help to the States should go to sub-district level inputs. The States have to assume primary responsibility for necessary decentralization and transfer of adequate powers. Supports such as empowerment, guidance, training, etc., will be required.

As integral part of Panchayati Raj, full organizational setup for primary health care, i.e., from village to Community Health Centres (CHCs) should be under the administrative control and part

and parcel of Zilla Parishad (Z.P.). This should be managed by District Health Officer. Taking into account high responsibility, jurisdiction, number of officers and staff to control and supervise, and the budget, District Health Officer should be of the rank of Deputy Director of (Public) Health Services. It is best to designate him/her District Health Director. Approach has to be comprehensive.

#### **Sub-district level organization:-**

**(i) Village level Organization:** (a) Most important is to provide a mechanism for management of the proposed village level health organizational set-up. Democratization should be total. Village *Gram Sabha* and/or the village *Panchayat* should be responsible for this social and welfare service. It is best to have **Village Health Committee** with six or more members; each being responsible for one of the tasks listed below, viz. (i) environmental sanitation, cleanliness of the village; (ii) health education and IEC; (iii) nutrition and food sanitation and hygiene; (iv) control of diseases and epidemics; (v) health of women and children; (vi) medical relief. Management and administrative control should rest with Health Committee. The Chairman should provide leadership and co-ordinate various activities. This should be under the control of *Gram Panchayat* or *Gram Sabha*. The organization should take the responsibility to create and provide minimum basic facilities for primary medical care of simple ailments and public health services in every village and settlement. Services should be comprehensive and integrated. Various tasks to be performed include the following classical nine elements of primary health care:

- Provision of adequate supply of safe drinking water. This should be easily accessible to all the villagers and available at all times.
- Provision for sanitary disposal of human excreta, waste water, refuse, animal excreta and other wastes.
- Maintenance of environmental cleanliness of roads, public places and buildings, bazaars, and all open spaces, etc.
- Programme of health education and information transfer on related matters for lifestyle and behavioural changes. Creating public awareness about various health hazards so that health is promoted and appropriate steps are taken for disease control and prevention.
- Instruction for proper nutrition during pregnancy and early childhood. Promotion of food sanitation & hygiene, especially in public eating places, fairs, hotels, food vendors, etc.



- Control and preventive measures against common communicable diseases and epidemics through environmental health, personal hygiene, immunization, etc.
- Rendering First-Aid for accidental injuries and emergent situations.
- Promotion of comprehensive health care of women and children below five years of age, and of other vulnerable groups such as the disabled.
- Provision for treatment of minor ailments and referral arrangements for management of other illnesses.
- Any other measures to deal with the local health problems.

It is desirable to have some place in each village, which will serve as a base or focal point for health activities. It could be a **“Health Post”** (**“Arogya Dham”**), Panchayat premises or any other public or private place/premises. This place may also serve as **Health Depot (Arogya Samugri Kendra)** where the equipment for home nursing of the ailing, drugs required for treatment of minor ailments and the diseases under National/State control programmes, first-aid equipment/materials, disinfectants, contraceptives, etc., are stored and available to the villagers. Facilities for safe delivery may be also provided here. This could be a place for immunization, care of pregnant women and children, meetings on health education and other business, and so on. What shape and character this would take will entirely depend on local people and resources they could mobilize.

Who will provide medical services? Many villages will have a vaidya or homeopath or hakim or Bhagat or dai or even a modern doctor. They will be useful for treatment of minor ailments, injuries and common diseases. Further, as suggested by Srivastava Committee, it is ideal for each village to have its own self-employed para-professional persons who are properly trained to provide basic medical and health care to the people. Most of the health promotional measures that are required at the village level can be provided by the suitably trained persons such as Community Health Workers or Health Guides or Health Volunteers who have necessary skills, knowledge and motivation. Unfortunately, Community Health Workers’/ Health Guides’ scheme has failed in its mission because of erroneous handling and perception. Although it has been discontinued by the Government of India, it might be revived locally by the villagers with necessary modifications and support from *Gram Panchayat*.

It should be noted that the scheme was initiated as a health programme for providing primary health care, and was to operate together with the technical support from the Multi-purpose Health Workers working at either a sub-centre or Primary Health Centre. It is essential to revert from family welfare to the original concept, thrust being on health care. As an alternative, it is feasible to train some of men and women from each village as Health Volunteers to perform the tasks as of Community Health Workers or even the job of Health Workers (MPWs). This role can be also taken by the school teachers or other persons who may volunteer for this endeavour. The Self-Help Groups and other Volunteer Groups can play vital role in the task of village upliftment. If the purpose is clear, there may be several ways and methods that villagers may think of and deploy. Remuneration to be paid to local health functionaries and cost of drugs for treatment of minor ailments and injuries has to be financed by villagers themselves. Adequate flexibility is necessary. But let the villagers decide what they need, what they would like to have, and how best to get and manage it. It is essential, as a primary referral, to develop strong functional linkages between the CHWs/HGs, health volunteers, etc., and the Health Workers, both male and female.

Maternity service is a must for each village. Dai used to take care of the deliveries traditionally. But this is a perishing institution. Deployment of Auxiliary Nurse-Midwife (ANM) in the villages has not helped generally to ensure safe delivery at home. Dai system has to be replaced by fully trained “Sutika” or “Sueen” – traditional names for a midwife. In every village couple of girls or young women can be trained under 7+3 and 10+2 vocational training scheme to produce midwives and other health functionaries.

Another important aspect is to identify and encourage community organizers to take interest in public health and environment. For communicating health information effectively to the people, it is essential to constitute in each village disseminator groups consisting of well informed men and women volunteers. The health activities have to be planned, set up and reviewed and enhanced by the villagers, *Gram Sabha* and *Panchayat*.

**Referral and support system** is essential because all requirements for health promotion and public health cannot be managed locally by the people. Technical support and guidance should be ensured through the Health Workers, male and



female, who are located at the sub-centre village. The materials and services that are available through the sub-centre and primary health centre should be placed at disposal of the villagers. Two-way referral system is essential for higher level support for diagnosis, investigations, and treatment. Depending on the situation and contingency, the place could be nearest Primary Health Centre or Community Health Centre, or occasionally the District Hospital. Local private medical practitioners and various types of hospitals may also be considered. It is urgent to strengthen links between the sub-centres and the PHC, and between the PHCs and Community Health Centre. Quality of the services at all levels should be improved. This will improve utilization and reputation.

**(ii). Sub-Centre level Organization:** By the current norm, one sub-centre has to be provided for every 5,000 population in general and 3,000 population in the tribal and difficult areas. The number of villages that may fall within this population base varies considerably from State to State and even within districts. In Kerala, this would mean only half of a village, while in Nagaland; there might be 100 villages in one sub-centre area. On an average, there may be five to six villages in a sub-centre. But in Rajasthan, it is possible for ANM/MPW(male) only to cover one village in a day. Because of want of roads, one has to walk on sandy paths to reach a village or one may use camel-cart taking the same time to go. Thus, there cannot be uniformity and one has to leave final decisions to the local organizations. In Andaman-Nicobar islands, the norm is based on the distance, and not on the population. This particular point should be considered and settled at the time of district level micro-planning. Apart from distance, another factor is the efforts and time required to reach the villages from a sub-centre. As the village level health organization develops and becomes self-reliant, sub-centre will start losing its utility and may require modifications so as to provide higher technical and other necessary support to the villagers. Village should be self-content in day-to-day matters.

Sub-centres should have their own building, public or rented. A standard lay-out and floor-plan may be provided to serve as a guide, but the minimum requirements should be insisted. Concerned *Panchayat Samiti* and the *Gram Panchayat* should decide this finally. But it should be essential to provide for delivery services and conducting health clinics, meetings, etc. Sanitary facilities should be provided. As in other villages,

sub-centre village should have separate setup of health-post with its own premises. Its functioning should not be seconded to that of the sub-centre.

Standard staff a sub-centre should have is one male and one female Health Worker, and one female attendant. Multifarious duties and functions of both Health Workers should be made known to all villagers so that people are able to use the services fully. These workers should be selected by the *Panchayat Samiti* (PS) or *Zilla Parishad* from among the applicants from the villages that fall within the jurisdiction of the sub-centre. They are trained at a recognized centre for duration of one to two year. Both these should be appointed and paid by the PS. Both the posts of Health Workers should not be transferable except on promotion. As and when *Panchayat Samiti* can afford, it may consider providing Multipurpose Health Workers even at the village level.

Sub-centre should be suitably equipped and supplied regularly with proper quality materials in adequate quantity. It will be essential to prepare a list of standard equipment and materials required for the effective functioning of a PHC sub-centre.

Management of sub-centre should be a joint responsibility of the respective *Panchayat Samiti* and *Zilla Parishad*. For effective management, it is essential for all to understand the importance of supportive supervision supplanting to a considerable measure the authoritative and punitive types of supervision that prevail. This is the most vital element of the relationship and roles of the male and female Health Workers *vis-à-vis* Community Health Workers/Guides and other village level self-employed functionaries. To provide supportive supervision to the Health Workers, for every three sub-centres there should be one male and one female Health Assistant. Duties and functions of both the Health Assistants should be made known to all the villagers so that the people are able to use their services fully. These workers should be selected by the *Zilla Parishad* from among the Health Workers from the villages that fall within jurisdiction of respective three sub-centres or PHC, and sent for training at a recognized place and of duration of not less than one year. They should belong to Z.P cadre, appointed and paid by the Z.P.

As the system improves at the villages, sub-centres may not be required in the present form. But, such a situation is unlikely to happen in near future. A public health nurse or other suitable



functionary may be able to provide much improved quality services that may be required then at the level of a sub-centre.

**(iii). Health Centre level Organization:** This means a primary health centre (PHC). The population to be covered by a PHC is about 30,000 or 20,000. There are also other centres such as the Union Health Centre, Subsidiary Health Centre, Mini-Health Centre, Primary Health Unit, etc., most of these cover a population of about 30,000. These *ad hoc* nomenclatures have caused much confusion. To avoid this, it is necessary to drop all these and re-designate them uniformly as 'Health Centre'. Incidentally, there are no secondary health centres as were envisaged by the Bhore Committee.

By the current norm, one PHC has to be provided for every 30,000 population in general and 20,000 population in the tribal and difficult areas. Number of sub-centres that fall within this population base is six. Apart from rendering services, the most important function of the PHC is supportive and supervisory to the village level health development. It has to cater for all the sub-centres, all the villages and most important all the villagers within its jurisdiction. Supervisor such as a Medical Officer at Health Centre has to be a planner, organizer, leader and guide, teacher, evaluator, learner and experimenter.

The primary health centres were established to serve as a focal point through which integrated curative, preventive and promotive health care were to be delivered to the entire population of a defined geographical area. But this has not been the case. In practice, most of the PHCs function as a dispensary with a poor quality of MCH Centre attached. Many medical officers are not even aware of the fact that they have some geographical jurisdiction and have to ensure that the field staff & supervisors provide the preventive and health promotional services to the people. All are required to collect 'cases' for meeting targets for family planning programme. Under the circumstances, what is the solution and how best we can manage these PHC and sub-centre complexes for improving the health status of the population? Additional inputs are certainly necessary, but main issue is of self-determination. Authority and powers must be delegated so that emphasis is shifted from *family planning* to satisfy all the local unmet-needs of all kinds focusing on integrated and comprehensive socioeconomic development.

The main constraint and problem is failure of the medical officer in charge of the PHC to

provide good quality curative service to the satisfaction of the people, to attend to preventive and promotive programmes, and to pay field visits to provide effective supportive supervision and guidance to the grassroots staff. This issue was carefully considered by the Jungalwalla Committee and recommendation was to create a non-medical post entitled "Community Health Officer". Accordingly, such post was accepted by the Government of India under staffing pattern for the PHCs covering population of 30,000 or 20,000. Unfortunately, not realizing and understanding the significance and benefits of such a post of Community Health Officer, most of the States have appointed instead a second medical officer.

**Community Health Officer (CHO) Scheme** was an attempt to rectify and resolve the issues arising out of the failure of the medical officers, with least disturbance, by readjusting the 'staff functions'. While the medical officer will continue to be administrative chief of the PHC complex, his/her main duty will be to provide medical relief by conducting O.P.D. at PHC and sub-centres, look after the inpatients admitted in PHC, conduct or supervise deliveries, conduct or guide MCH and such other clinics at PHC and sub-centres where clinical work and consultation are necessary. The concept of health care is essentially that of positive health. Responsibility for the health care services through the PHC and sub-centres will be that of the Community Health Officer. He/She will not have any 'curative' function, except for providing training and guidance to the village level functionaries and the Health Assistants as far as treatment of minor ailments is concerned. CHO will be responsible for all national and State level public health programmes, looking after the sub-centres, etc. The post of CHO will be of a Gazetted rank, but non-medical, and will provide a promotional avenue to all the categories of paramedical and nursing staff, after one to two years of promotional training. If the States desire that second medical officer is necessary, although he/she may not be suitable, medical and public health functions at PHC should be separated and the second medical officer should function as a public health officer as if he/she is CHO.

In most of the States, there are dispensaries and sub-district, i.e., Taluk level and other hospitals. All these provide medical or curative services to the people within the jurisdiction of the primary health centres. There is no need to disturb these medical institutes, except to ensure that the services provided are of good



quality, there is no exploitation and are comprehensive as far as possible.

Management and administrative control of the PHCs should rest with the Zilla Parishad (Z.P.). All staff, including the medical officer, should be on Z.P. cadre, and selected, appointed & paid by it.

Staffing Pattern of Health Centre – The Health Centres should be adequately staffed so that the general health services become strong enough to provide good quality medical relief and deliver effectively integrated public health services – disease control, sanitation, health education, etc. Standard staff at Health Centre should be:

- 1. Medical Officer, male ..... one
- 2. Medical Officer, female ..... one
- 3. Health Officer (non-medical) ..... one
- 4. Health Assistants, female ..... two\*
- 5. Health Assistants, male ..... two\*
- 6. Environmental Health Overseer ..... one
- 7. Nurse-midwife, for ward ..... one
- 8. Compounder cum Dresser ..... one
- 9. Ophthalmic Technician..... one
- 10. Laboratory Technician .....one
- 11. Senior Clerk cum Store Keeper ..... one
- 12. Junior Health Statistician .....one
- 13. Junior Clerk cum Store Keeper.....one
- 14. Driver .....one
- 15. Laboratory Attendant .....one
- 16. Sweeper cum Ward Boy .....one
- 17. Sweeper cum Ward Aya .....one
- 18. Watchman .....one

Note: (\*) These should be stationed at one of the sub-centres within PHC’s jurisdiction. In addition to this, H.Q. village of the Health Centre should have one each of the Health Worker, male and female, for covering the local population. If the population is more than 5,000, additional Health Workers are to be appointed. What is proposed here is the optimum level of staffing. Starting with the minimum essential, it should be phased out.

**(iv). Community Health Centre level Organization:** The Report of the ICMR/ICSSR Expert Study Group, 1980, entitled Health For All – An Alternate Strategy, recommended establishment of Community Health Centre (CHC), one for about 1,00,000 population, i.e., for a group of three to five Health Centres. Primarily, it was proposed to function on the pattern of Sanitation and Epidemiological Stations in the erstwhile USSR. It was expected to provide public health expertise, epidemiological services, training,

monitoring & evaluation, continuing education, and first level referral for medical care by the basic specialists, including diagnosis, special investigations, consultation, special treatment, & surgery.

Unfortunately, this cardinal feature of the CHC, i.e., Sanitation-cum-Epidemiological Station was neglected and abandoned when the Central Government modified and approved it in the sixth Five-Year-Plan. Only the name was retained, but in reality it was the same old style 30 bedded rural hospital (upgraded PHC). This is typical example of lack of understanding, concern and appreciation of public health problems even among the top planners and policy makers of top bureaucrats and the medical administrators from the curative disciplines. The concept of ‘upgraded PHC’ has to be dropped.

The CHC is to be headed by a Public Health Officer. Other specialists were a general physician, general surgeon, obstetrician and gynaecologist, and paediatrician. Many Taluk or Tahasil hospitals and even the PHCs have been just re-designated by the State Governments as CHCs. By and large, CHC programme, in the present form, is not satisfactory even as a referral hospital. It is essential to revise the CHC scheme on the lines recommended by ICMR/ICSSR Study Group. This is a demanding task and inputs are high. To focus on public health aspects and on manpower development would be the major endeavours. Staffing pattern for Community Health Centre: (epidemiology, sanitation and health services)

- 1. Taluk Public Health Officer, in charge ..... one
- 2. General Physician ..... one
- 3. General Surgeon ..... one
- 4. Obs. and Gynaecologist ..... one
- 5. Paediatrician ..... one
- 6. Medical Officers ..... four
- 7. Public Health Nurse ..... one
- 8. Asst. Public Health Engineer ..... one
- 9. Sister, General and O.T. .... one
- 10. Nurse-Midwives .....six
- 11. Senior Sanitary Inspector .....one
- 12. Sanitary Inspectors ..... two
- 13. Senior Laboratory Technician ..... one
- 14. Laboratory Technician ..... one
- 15. Pharmacist ..... one
- 16. Compounders ..... two
- 17. Radiography, X-ray Technician ..... one
- 18. X-ray cum. Dark Room Assistant ..... one
- 19. Physiotherapist ..... one
- 20. Ophthalmic Assistant ..... one
- 21. Laboratory Attendants ..... two



22. Ward Boys .....	four
23. Ward Ayas .....	four
24. Sweepers .....	four
25. Drivers .....	two
26. Watchman .....	three
27. Accountant .....	one
28. Senior Clerk .....	one
29. Health Statistician, trained in P.C. ....	one
30. Statistical Assistant cum computer .....	one
31. Clerk cum storekeeper .....	one
32. Health Education Officer .....	one
33. Sanitary Squad of five members .....	five

Note: What is proposed here is the optimum level of staffing. Starting with the minimum essential, it may be phased out.

### District Level Organizations:-

The setup will be separate for the medical and public health services. The former will be under State Government, while the public health set-up will be under the *Panchayati Raj*. As for the Municipal Corporations and other Municipal cities and towns, these local self-governments will be responsible for both medical and public health services. There may be problem regarding the class III Municipalities and these may be covered either by the Government or incorporated under the *Panchayati Raj* system.

At present, District Health Organization is the weakest and uncared for. Because the situation in different States is not uniform, it is necessary to review District Organization in full consideration of this paper. The experiments in Tamil Nadu and Andhra Pradesh need deliberation and analysis.

#### (a) District Organization under the Panchayati

**Raj:** District level organizational setup of health and of public health engineering services is perhaps the most important and critical for efficient management of health development programmes. Unfortunately, this has remained the weakest link in the hierarchical management of health programmes, and this has been a major concern and cause of poor performance. The evolution of the district organizational setup has been *ad hoc* and without any purposeful planning. In old days, services were limited to medical relief at the district or civil hospital, and Taluk hospitals and dispensaries. The chief was a Civil Surgeon. The posts of public health officers were created for management of the epidemics of cholera, smallpox and malaria, and vaccination against smallpox. When the Medical and Public Health Departments were integrated,

Civil Surgeon, a clinician, was re-designated as Chief Medical Officer (CMO) by many State Governments. On the other hand, some State Governments, created a post of District Health Officer to look after the vertical programmes. More posts of district level officers exclusively for family planning, malaria, leprosy, tuberculosis, etc., were added in due course. When multipurpose Health Workers' Scheme was introduced, both the State & Central Governments disregarded its application and they neither integrated the vertical programmes nor reorganized district administrative setup on geographic basis. And today, the district health organization is in shambles, weak and ineffective.

In most of the (Northern) States, CMO is at the top leadership position, but most of them look only after the hospital and their own private practice. Responsibility of Public health is handed over to a Deputy CMO; most of them are not formerly trained either in public health or management. He/She has neither interest nor carries much credibility or authority. Various national health programmes like Malaria Eradication, Tuberculosis Control, Leprosy Eradication, etc., and Family Welfare programme are managed by the respective programme officers, without any co-ordination or dialogue between them. In fact, these programme officers often take instructions directly by the State level officials and Deputy CMO has virtually no control over and of these officers. Naturally, there is no unified control & command; and performance largely depends on the pressure exerted by the stronger of the State level programme officers.

The picture is rather better in the States where the post of Civil Surgeon continues to operate in the old style. He/She looks after only the Civil and other hospitals, and dispensaries in the district. His/Her role is mostly limited to medical services, except clinically oriented national programmes like the Tuberculosis Control, V.D. Clinics, Post-Partum Centre, and Cataract and family planning surgery. The public health part of the services is fully under the control of the District Health Officer (DHO). Large number of the DHOs (like the Deputy CMOs else where) are untrained in public health and management. The problem of multiple programme officers each exclusively looking after his/her specific vertical health programme still continues all over the country.

In States like Maharashtra where the Zilla Parishads are very well established, the situation is better. Except the medical officers, all the rest of health personnel belong to the Z.P. cadre and the



State has no control over them. All the health and family welfare programmes are operated by the Z.P. on either transfer or agency basis. All DHOs, Asst. DHOs, and some of the senior medical officers i/c of PHC do have Diploma in Public Health. Recently, in Maharashtra and Rajasthan, a new post of Taluk Public Health Officer is created.

It is, therefore, essential to review, examine and rectify the health organization set-up at the district level. It should be mandatory that the Health Officers at the District level have formal training in Public Health<sup>4</sup>, Management & Epidemiology. Such exercise has to be taken separately for different States and U.Ts. In this exercise, one has to maximize available resources. Organization should be based on the activities and not on the basis of vertical programmes. Division of public health engineering and sanitation has to be setup. Division of work should be on geographical basis and not functionally. Multiple budget Heads should be merged into one for comprehensive health development, and enough powers and resources should be delegated. A model Organizational Structure for District Level is given as Appendix A. This has to function under *Zilla Parishad* and other *Panchayati Raj Institutions*.

**(b) District Organization under the State Government {Secondary Health Care}:** This is restricted to the District/Civil Hospitals and other Government hospitals for Tuberculosis, Psychiatry, Maternity, or general medical relief. Civil Surgeon or Chief Medical Officer will be in charge of these hospitals which will provide secondary health care setup in the public sector. However, in the disease control and various public health programmes, Civil Surgeon or Chief Medical Officer shall have to cooperate and collaborate with the District Health Officer and his/her team. He/She also has to furnish information regarding medical care to the District Bureau of Epidemiology and Statistics. All sub-district level institutions such as the Community Health Centre will be under the *Panchayati Raj* system although the first level referral secondary health care will be provided here.

As regards the Health Officers of the Municipal Corporations and other municipalities, they are responsible technically to State Health Directorate. However, in the disease control and various public health programmes, he/she shall cooperate and collaborate with the District Health Officer. He/She also has to furnish information regarding medical care to the District Bureau of Epidemiology and Statistics.

**State/UT Level Organizations {Tertiary Health Care}:-** There exist large variations from State to State. As in the case of districts, in most of the instances, State level organizational setup is the outcome of *ad hoc* expansion and growth. However, it is certain that the current setup of the Health Ministry and Directorate in any State is not efficient in effectively managing the delivery of need-based curative, preventive and promotive health care services to the common people. Nevertheless, very extensive variations in different States should be taken into consideration before one tries to optimize the administrative setup at this level. There cannot be any uniform formula. At best, some principles can be laid for consideration:

- a. There should be unity of command.
- b. It should be supportive to development of strong District Organization.
- c. Staff officers (positions) should not be allowed to function as the line officers.
- d. The span of control should be small.
- e. Divisions should be functional and NOT programme-wise.
- f. Interrelationships and interdependence of various Divisions/Bureaux should be explicit.
- g. Technical functions should be assigned only to the technical/professional persons; not to the bureaucrats.
- h. There should be Technical Consultative Board for the expert and multi-disciplinary advice and consultation to Health Ministry and Directorate of Health Services.

Each State/U.T. should have its organizational setup for health tailor-made. It is essential that the task should be assigned to a group of public health and management experts, and reviewed at the national level by a high-power committee. Big States may also require regional level organization for improved efficiency. In this setup, there should be a strong State Bureau of Epidemiology and Biostatistics.

#### **Central Level Organizations:-**

Health is the State subject. Therefore, there is no need for a big administrative set-up at the Central level as this exists today. There is a Central Health Services cadre; and the Government of India is responsible directly for (a) health of people in the Union Territories, and (b) for concurrent and central subjects as laid down in the Constitution. Of the two roles and functions, at present the Central Organizational setup – Health Ministry and Directorate – spends most of its time



and energy on the matters related to the first role. When the Parliament is in session, hardly any consideration is given to the national health programmes and on the matters concerning the health issues of the State Health Directorates or of State Health Ministries. If there is any public related issue or problem at any of the Central Health Institutions in Delhi, the Central Health Ministry and Directorate general of Health Services work exclusively for Delhi. And this is true at most of the times, there is no time for the national level functions, except attending international conferences, WHO assignments, foreign tours, etc. In brief, the federal functions are ignored & neglected. However, it is should be mandatory that these two functions of the Central Organization should be performed in a well balanced manner without letting one to take precedence over the other.

There is considerable duplication of work at Nirman Bhavan. Health Ministry & Directorate General of Health Services process and examine the same files/issues. There is much bureaucracy and technical subjects like malaria control, immunization, MCH, and family welfare are administered by IAS officers. The Director General is often not in the picture. This has to be rectified.

Though belonging to the same Ministry, the Department of Health, Department of Family Welfare, and Department of Indigenous Systems of Medicine, work in air-tight compartments. There is clear cleavage between them without any collaboration. Same is the case with Programme Officers in charge of various National Health Programmes. There is no dialogue at all. There is no scope or question of any co-operation or collaboration between them in the present setup.

The nature of work at the Central level, especially that pertains to the States and U.Ts., is essentially that of the public health disciplines. One needs officers and experts trained in public health for this job. But most of medical officers in

the Directorate General of Health Services and Ministry of Health and Family Welfare, are clinical specialists whose experience is mostly limited to CGHS/hospital. It is only by chance that a few of these officers have worked in one or more UTs. A person who has never seen a village may be in charge of rural health programmes. This needs immediate change. There is clear-cut exigency to institute new cadre of Indian Public Health Service for the federal functions. The present Central Health Services continue and subserve for the health of people in the Union Territories.

Such a division of work, apart from being functionally sub-optimal, is also opposed to the Cairo Declaration (1994), which places reproductive health services squarely in the framework of a good primary health service network.<sup>4</sup> This shortcoming has to be rectified. Thus, main mission of the Central level Health Organization should be (i) to determine the health needs of the people in different parts of the country, (ii) to educate the people to the health needs, (iii) to support research and the approaches which are necessary and feasible to provide solutions to the health problems, and (iv) to ensure the development of the facilities and services required to meet these health needs. The main objective at the Central level organization should be to facilitate effective and efficient administration by the State, U.Ts., and local self-government health authorities in order that as much responsibility as possible may be assumed by them.

Intersectoral coordination and advocacy are also lacking. There is no meaningful dialogue between health, public works, education, social welfare, environment, etc. There is no strong relationship and interaction between National Sample Survey Organization, Sample Registration System, the Model Registration System, National Information Centres, etc., that collect information and data which is useful for health planning and monitoring. These should be linked and networked with the health management information system.

**Reorganization of the Central Administrative Setup, illustrative division of functions is given below:**

**(A) General Administration:**

- |  |                        |   |                         |
|--|------------------------|---|-------------------------|
| a. Administrative services                             | b. Management Analysis | c. Personnel                              | d. Public Information   |
| e. Stores and Procurement                              | f. Accounts and Audit  | g. Planning                               | h. International Health |
| i. Statistics and Data Processing, Interpretation, etc |                        | j. Intersectoral Collaboration & Advocacy |                         |

**(B) General/Basic Health Services:**

- a. Primary Health Care – sub-district services, trans-departmental activities



- b. Secondary Health Care – district/civil hospitals, basic speciality hospitals
- c. Tertiary Health Care – super-speciality hospitals

(C) *Epidemiology and Preventive Services*

- |                                  |   |
|----------------------------------|---|
| a. Communicable Disease Control  | b. Non-communicable Disease Control         |
| c. Disability and Rehabilitation | d. Occupational Health                      |
| e. Epidemiological Surveillance  | f. Health and Welfare of Children and Women |
| g. Nutrition                     | h. Mental Health                            |

(D) *Community Health Services*

- |                               |                              |
|-------------------------------|------------------------------|
| a. IEC and Health Education   | b. Nursing                   |
| c. Social/Voluntary Work/NGOs | d. Private Medical Practice  |
| e. School Health              | f. CHW/HGs/Health Volunteers |
| g. Drug Control               |                              |

(E) *Environmental Sanitation and Health*

- |                         |                     |
|-------------------------|---------------------|
| a. Water Supply         | e. Sullage Disposal |
| b. Excreta Disposal     | f. Air Pollution    |
| c. Solid Waste Disposal | g. Food sanitation  |
| d. Vector Control       | h. Radiation        |

(F) *Laboratory Services*

- |                                    |                   |
|------------------------------------|-------------------|
| a. Public Health                   | e. Microbiology   |
| b. Food and Drugs                  | f. Virology, etc. |
| c. Air and Industrial Hygiene      | g. Parasitology   |
| d. Field Services for epidemiology |                   |

(G) *Dental Hygiene and Health*

(H) *Health Manpower development*

- |  |   |
|--|---|
| a. General/family Physician            | b. Public Health – physician, engineer, social scientist, epidemiologist, and other specialists |
| c. Basic Medical/Surgical Specialists  | d. Super-specialists  |
| e. Nursing – basic, post-basic         | f. Health workers – male and female   |
| g. Health Assistants – male/female     | h. Community Health Officers  |
| i. Laboratory and Clinical Technicians | j. Pharmacists and other supportive areas   |

(I) *Research and Development*

- |   |                                       |
|---|---------------------------------------|
| a. Health Surveillance                    | b. Research Planning and Consultation |
| c. Statistical Consultation to Programmes |                                       |

(J) *Central Health Services and Parliament Work*

- |  |                                       |
|--|---------------------------------------|
| a. Central Government Health Scheme (CGHS) | b. Union Territories                  |
| c. CHS Cadre management                    | d. Central Hospitals and Institutions |
| e. Parliament questions and other matters  | f. International Health and Aid, etc. |

The central organization includes some institutions and bureaux, viz. All India Institute of Hygiene and Public Health, Calcutta; National Institute of Communicable Diseases, Delhi; Central Health Education Bureau and Central Bureau of

Health Intelligence, both at New Delhi; and some (pseudo) autonomous Institutions. The first should be substantially upgraded, and the rest require in depth review of the structure and functions so as to bring them in conformity with the proposed



structure of Central Setup. To illustrate, responsibility for the epidemiological surveillance and investigations for control of diseases should rest primarily at the District Bureaux. Role of National Institute of Communicable Diseases has to be supportive, training, research and consultative only.

In consideration of the above, a scheme for reorganization of the Ministry of health and Family Welfare, & Directorate General of Health Services, New Delhi, is given in Appendix B. Federal functions should be separated from other functions such as CGHS, CHS, Parliament work, etc.

### **Leadership and Direction:**

No organization can function effectively and efficiently without direction and a leader. In order to provide effective management and leadership, it is essential to take a special programme of leadership development. Until such time that a new cadre of Indian Health Service is created, the technical matters should be the function of the officers who are qualified in public health, and the generalist IAS officer's role should be limited to their expertise, e.g., finance, purchases and inventory control, personnel management, etc. The most vital requisite of effective management and leadership is the power for final decision. Currently, this rests with the IAS Secretary who is always a bureaucrat and gives decisions even on highly technical matters. It is essential to assign status of Secretary to the Government to the Director General of Health Services at the Centre and the Directors of Health Services of all the State Governments. Other Health Officers should also be given *ex-officio* status and appropriate administrative designations.

*Characteristics of Effective Leaders<sup>5</sup> are:*

- (a) Intelligence: As compared to their subordinates, leader is usually more intelligent. He/She must have imagination, ability to think of ideas, alternatives to solve a problem and ability to fore see future problems and consequences. However, he/she has to work with people and not ideas.
- (b) Supervisory ability: This is ability to plan, organize, coordinate, control and motivate the members of his/her team.
- (c) Initiative: This means one's own motivational organization as well as cognitive orientation. Manager must be willing to take action and also must have ability to think of various alternatives.
- (d) Adaptive ness: One should be perceptive of the situation in which one is operating. And with

awareness of internal and external changes, one should be able to adapt and work in the dynamic circumstances.

(e) Self-assurance: One must have positive self-concept. If one is self-confident, one will be effective in dealing with problems.

(f) Perceived occupational level: One must aspire for higher occupational and organizational levels. One cannot remain stagnant.

(g) Individuality: Activities must be creative, ideas should be original, and conformity should be low. One should not depend on superiors for decision-making.

Leadership is often inborn, but training may help one to reach one's potential. Manager should be able to direct by giving specific instructions and closing supervising task accomplishment. One has also to explain decisions and solicit suggestions, and support progress and advancement. As a good leader, one has to encourage, facilitate and support efforts of the subordinates for task fulfillment. Further, one has to share responsibility for decision-making with subordinates. A manager or administrator can assume leadership role if he/she learns to take a stand, to take risks, to anticipate, to initiate and to innovate.<sup>3</sup> So a Director can also lead.

Every leader may not have all these qualities and abilities. It is also true that for different work situations and types of organizations, different styles of leadership may be required. But sustainability of the organization depends on the continuity of capable leadership and direction. In this regard, delegation of powers is vitally important. One has to entrust responsibility for decision-making and problem-solving at least to one's second and third in the line of command. Unfortunately, this does not happen in most of the Directorates. Every leader and administrator, therefore, should endeavour and groom some of the senior colleagues as his/her successors. It will be advantageous if the public health educational system can blend in their trainee managerial expertise and aptitude with the leadership capabilities successfully.

**The Urban Areas:** Local self-governments like the Municipal Corporations, bigger municipalities and small municipalities deserve special consideration in regard to the organizational setup for the health services delivery. Whereas the municipal corporations do have enough resources and authority for the social services, this is not possible for class IV municipalities. Problems such



as housing, sanitation, water supply, slum population, and pollution of all kinds, are some of the major issues waiting for solutions. This subject matter has not been elaborated in this paper, but requires special attention in view of the rapid growth of these urban populations.

*Municipal Corporations:* These big cities and metropolis towns have the municipal corporations with full legal obligations to look after health needs of the citizens. These local self-governments do have adequate financial resources and powers to commensurate with the responsibilities. However, their record of providing the health services is not good. This is in spite of the fact that in these places, the private hospitals and practitioners apportion a major share for the medical care – both general and hospital. But on a negative side, urban development has much lagged behind the needs of rapid growth of the population. A major share of this is immigration and slum expansion. This portion of the paper is largely based on deliberations with the Ex-Chief Medical Officer of health of the Pune Municipal Corporation, Pune.

*Class I Municipalities:* The resources at the disposal of these smaller towns are much less than what is needed to discharge their statutory obligation to provide health services to the people. *Other municipalities* Conditions of these urban areas is worse than that of the villages because they are neither here or there. They have no resources and no powers.

## **(B) Organizational Structure for Education and Training –**

Formal education and training in public health in India are grossly inadequate and substandard. Formerly, subject of physiology and hygiene was obligatory in the secondary schools. This has been dropped long ago and nothing worthwhile is happening. During the medical education, public health and hygiene was a compulsory subject, but that was replaced by new subject of Preventive and Social Medicine or Community Medicine, a subdivision of the overall discipline of (curative) medicine.<sup>6</sup> Further, they constitute only a very minor subdivision of medicine, as measured by every parameter – prestige, financial support, number of personnel, political influence, etc. The concept of public health, on the other hand, is that of a major social and governmental obligation, multi-disciplinary, and it extends into almost all part of the society.

The key-word is “Health” and not “Medicine”; the universe of concern is the health of the public, not the discipline of medicine.<sup>5</sup> The change from Public Health to Preventive and Social Medicine or Community Medicine, was a tragedy and disaster.

It is necessary to initiate and coordinate integrated training and orientation programmes which will ensure that the staff of the Health Departments possesses adequate administrative, supervisory, scientific, and technical knowledge and skill to carry out approved public health programmes, to promote the use of training as means of solving administrative and supervisory problems.

The entire system of undergraduate medical education is not in balance with the national health and medical education policies and has not much relevance to the community need of a general practitioner or family physician. This requires in-depth consideration and radical reforms to put it on proper lines.

The educational and training facilities for the nursing, auxiliary and paramedical staff, public health engineering, and others, are grossly inadequate and poor. This has adversely affected the quality of services. This also needs in-depth study and substantial upgradation in all respects.

Health education has been an integral function of health departments. However, the impact on the public is wanting. It is high time that health education is integrated into the formal educational system in the country. Health, Physiology and Hygiene should be introduced as a compulsory subject in the primary, secondary and high schools.

*Suggested Reorganization:* Planning and development of health manpower are the neglected subjects, at present. Most of suggestions of Bajaj Committee are still on paper. It is essential to setup new **Bureau of Health Manpower Planning and Development**, both at the Central and State levels. Some of the pressing issues are as below:

Establishment of Universities of Health Sciences<sup>7, 8</sup> – Apart from a National University, each major State, and each group of smaller States and Union Territories should have University of Health Sciences. The States like Tamil Nadu and Andhra Pradesh already have established the Universities. But these also need restructuring to ensure that medical sciences are not given undue



emphasis at the cost of health sciences; and the professionals other than the medical, are not disregarded or ignored. Need to establish National University of Health Sciences is urgent. The institutes, such as listed below, should be brought under the purview of a National University of Health Sciences:

1. All India Institute of Hygiene and Public Health, Calcutta.
2. National Institute of health and Family Welfare, New Delhi.
3. National Institute of Communicable Diseases, Delhi.
4. Haffkine Research Institute, Mumbai.
5. School of tropical Medicine, Kolkata.
6. Central Research Institute, Kasauli.
7. Pasteur Institute of India, Shillong.
8. Central Leprosy Training/Research Institute, Chengalpet.
9. Central Health Education Bureau, New Delhi.
10. National Tuberculosis Institute, Bangalore.
11. All India Institute of Physical Medicine and Rehabilitation.
12. All India Institute of Speech and Hearing, Mysore.
13. National Institute of Virology, Pune.
14. National Institute of Nutrition, Hyderabad
15. National Institute of Occupational Health, Ahmedabad.
16. Vector Control Research Centre, Pondicherry.
17. National Institute of Diarrhoeal Diseases and Cholera.
18. Institute of Research in Medical Statistics, New Delhi.
19. National Institute of Epidemiology, Chennai.
20. Tuberculosis Chemotherapy Centre, Chennai.
21. Central Jalma Institute for research in Leprosy, Agra.
22. Malaria Research Centre, Delhi.
23. Enterovirus Research Centre, Mumbai.
24. National Institute of AIDS, Pune.
25. Institute of Research in Reproduction, Mumbai.

Medical education – Undergraduate medical education needs to undergo major changes. Tendency for postgraduate education, is on ever increase. This has resulted in scarcity of family physicians/ general practitioners. Training is also not need-based and emphasis is on curative aspects of medicine. Teaching hospital setup exposes the medical students to the specialists and super-specialists practising sophisticated clinical medicine. They study mostly on the serious patients and see rare and other diseases which are

not commonly encountered in general practice. They are not exposed to the general practice of medicine, or to the common ailments that the people suffer from. This should be corrected and reorganized on the basis of the role and functions of a general practitioner.<sup>9</sup> Thus, in reorganization, exposure of the undergraduate students to the present teaching hospitals should be only limited for learning history taking, physical examination and findings, and some exposure to modern laboratory, radiological and electronic ways of investigation and diagnosis. This should be not more than a year. Rest of the time, training should be in the community settings, municipal dispensaries, general hospitals like a District/Civil hospital and clinics of general practitioners.

In the present form, internship training is ineffective. For the persons who desire to join Government or public service, this training period should be used for pre-employment training to prepare them for the job; and the rest should be assigned to work in a Civil hospital or general hospital that is recognized for the purpose for six months, and work with a general practitioner/public dispensary for six months.

After completing internship and registration with the Medical Council of India, the fresh doctors should be required to serve under PRI in the rural areas at a primary health centre for a period of not less than two years. Only after such a service and experience, the graduates will be eligible (a) to register for postgraduate studies, or (b) to join services of Government / Municipal / Corporate / Private sector or (c) to start his/her private practice as a general practitioner.

Health being a multidisciplinary subject, one should not depend entirely on medical graduates to deliver public health services. The preventive and promotive services, in particular, demand for much wider knowledge and skills. It is essential to institute new courses leading to B. Sc. and M. Sc. in Public health/Health Sciences. This will also provide much needed promotional avenues and incentives to the para-medical, nursing and other technical staff, and boost their morale. Pune University conducts a course leading to M. Sc. (Health Sciences).

Departments of Preventive and Social Medicine and allied subjects, should be reorganized as Departments of Public Health and Preventive Medicine. The staff should be merged into the Health Services Cadre, and provided practical



experience in public health practice and exposed to community needs and health management issues. For this to take place there should be a plan of meaningful rotation as it is the case at the Armed Forces Medical College, Pune. These Departments also need substantial strengthening in all respects.

Regarding Postgraduate Medical Education, high priority need is to remove imbalances. Satisfactory service at a primary Health Centre under a Zilla Parishad for a period of not less than two years should be made mandatory to all those seeking admission to any postgraduate degree or diploma course. One or more years of service as a General Duty medical Officer at a full-fledged Community Health Centre should be recognized as a part of the period of postgraduate training for a degree or diploma courses. This will also to expose them to the first level of referral for secondary health care. While surgeons and physicians are in plenty, certain clinical specialists like paediatrician, radiologists, pathologists, etc., are in very short supply. These distortions should be removed. The permitted number of postgraduate students per teacher is uniformly one per teacher. This should be reduced to one for two teachers in the subjects like medicine, surgery, etc., where there is excess of specialists; it should be increased to 2 or 3 in case of subjects like public health, epidemiology, pathology, radiology, etc., the specialists are scarce; in other disciplines *status quo* may remain.

Higher Education in Public Health and Administration – This is the most neglected field today. Immediate need is for strengthening and sustaining public health institutions for education, training & research, by expressly seeking out bright and creative scholars and administrators to form a critical mass of expert professors and consultants.<sup>10</sup> Training in public health & its specialities, in public health nursing, public health engineering is scarce because of lack of Educational Institutions. There is urgent need to establish at least six National Postgraduate Schools of Public Health, and two or three National Institute of Environmental Health. This question is very crucial and a high-power study group should be nominated to examine this item and give specific recommendations.

Nursing Education – National need is to reverse proportion of nurses to doctors. This means several fold increase in the colleges, seats and training facilities for nurses. Funding for nursing education should compare well with that for doctors. The student nurses should not be used as staff for services. Special programme should be

taken for training public health nurses in large numbers.

Community Health Officers – This is a new category of health officer, but non-medical. Jungalwalla Committee has suggested minimum of six months orientation course (promotional) for the Health Assistants, both male and female, for their promotion. But such courses have not been provided except at AII&PH, Kolkata. Without revival of this scheme, performance at the Primary Health centre is unlikely to be satisfactory.

Grassroots Health Staff: (a) Female Health Workers (ANM), & Female Health Assistants (NM) – There are the back-bone of health infrastructure. The quality of education needs substantial upgradation. It is inappropriate to train them in a hospital and a setting which is drastically different than they are required to function. Facilities that are available for education are deplorable and distressing. Training schools should be built *de novo* with substantially improved financial inputs for land, buildings, hostels, staff and facilities like expert teachers, library, field areas, transport, equipment & running expenditure. Emphasis should be on practical and job oriented training. The number of seats should be according to the projected requirement of employment.

(b) Male Health Workers and Male Health Assistants – Whatever has been mentioned about the female health workers/assistants is even truer in the case of the males. Duration of both these courses should be 12+2 so as to ensure their promotion. Health Worker's training may be 10+2, vocational, and equated to 12 for further education and career development.

### **(C) Organizational Structure for Research –**

By and large, there is enough knowledge and skill, and adequate science and technology, necessary to tackle most of the health care needs of our people. The crux of the problem is non-utilization of the available knowledge and technology. Hence, what is compelling is health systems or services type of research which helps to identify, test and select feasible ways of application of the appropriate knowledge and skills for the welfare of the community.

The health needs of the people are dynamic and change with the improvements that take place over time. In view of this, it is necessary to maintain a programme of investigation and research designed to provide continuing knowledge



and data on the health status of the people, to identify conditions that are associated with ill-health, to develop new technical and administrative methods of disease prevention and control, and for better health.

Leaving the private and voluntary organizations, research in health and medical field is conducted in medical colleges, some Universities, and the research institutions established by government, and Indian Council of Medical Research. Of all these, the ICMR is main organization that is responsible for health research in India. It should be accountable of the lack of research support. We require policy formulation & effective management of research on health services at the Central, State, district and community levels.

In the last four decades, ICMR has expanded significantly and several research institutes and regional centres have been established. The functioning of the Council has been reviewed twice. The Review Committees have made several considerate and significant recommendations. But the recommendations have not been taken seriously and fully acted upon. Apart from this, the research programmes that are being taken at present, or are financed, require a scientific review as to the utility and relevance *vis-à-vis* the national health policy and the health programmes. Many research results are crucial, but findings have not been used by the concerned. Failure to use the results of commissioned research on the part of the Government is serious. Such issues should be looked into. Research function, being integral part of health management, needs to be decentralized.

Research should be essentially of health systems/services type so as to optimize the use of available knowledge and technology, and the operations research. It should also support policy formulation and the operations. The starting point of any health services research will always be the concern and commitment in improving effectiveness of health care services in promoting the health status of the people. The elements of effectiveness include: (a) totality of coverage (areas and population), (b) quantitative aspects such as incorporation of all components and activities of medical and health care, (c) qualitative aspects such as performance and effectiveness, (d) co-ordination, balance between curative and public health services, (e) urban and rural parity, (f) priorities *vis-à-vis* community needs, and (g) efficiency in terms of cost-benefits/ cost-effectiveness, better standards

of health status, improved productivity and quality of life, well-being and satisfaction of the people. How can we learn from the experience and skills of a local reformer or voluntary agency which have found answer and solved a common problem?

Essential requirements for organization of research in health care delivery system include proper motivation and desire to improve the health services, research capability, scientifically trained manpower, willingness to change, and apply research findings both in planning and management of health programmes.

Constraints in undertaking meaningful health services research that is relevant to our community needs include the following: (a) present general organizational & administrative set-up which is not conducive, (b) management processes which are based on inadequate and poor data (even the use of available information is limited), (c) planning which is largely expansion-type rather than problem-based, (d) inadequacies of machinery to identify operational and qualitative problems in efficient delivery of health services, and (e) low priority and grossly inadequate financial provision for research.

Thus, it is necessary to review and restructure research organizations in the country. In a vast country like India, it should be mandatory to have State Councils of Health Research. This task to design suitable organizational setup should be given to a special high powered Commission whose recommendations should be obligatory.

#### **Institutional Coordination and Collaboration:**

No organization will be ever fully self-contained and it is often cost-effective and of mutual benefit to collaborate. Universities will be of great help to study and keep watch on disease vectors, and to initiate courses in B.E. (Public Health Engineering), etc. Education Departments can significantly contribute by setting vocational training in health subjects. Indian Statistical Organization and the Registrar General of Vital Statistics can strengthen the Health Information and Epidemiological systems. The subjects like water management, environmental sanitation, and human settlements come under Department of Public Works. It is best to create a new Department of Environmental Health so that these vital components of health will get due emphasis and attention. For optimum performance, networking of all these institutes is necessary.



### **Thrust Areas for Reorganization — Prime Measures:**

(a) ***Have a single Secretary (H&FW) rather than two as at present*** — There is clear cleavage between the (Public) Health and Family Welfare (Planning) Services. Two Departments working separately under separate Secretaries have become counter productive and wasteful, rather than supplementing each other. It is, therefore, essential to integrate/unite them into one Department. Further, there is a lot of duplication of working of the Ministry of Health and Family Welfare, and the Directorate General of Health Services. This has not only resulted into inordinate delays, but has also severely undermined technical and scientific aspects of health Administration and Development. It is essential, therefore, to synthesize these two together also incorporating the third Department of the Indian Systems of Medicine (ISM). It should be a single structure with two wings — one technical and second administration.

(b) ***Internalization of ISM in Health Delivery System at all Levels*** — Indian System of Medicine constitutes an integral part of culture and tradition. With the Primary Health Care approach, over it is possible for the people to take care of about 90 to 95 per cent of ailments and some of the common diseases by using simple modern, ISM and homeopathy remedies in a most cost-effective manner. Here herbal medicines are of special significance. Like Chinese medicines in China, it is essential to officially internalize ISM into the formal governmental health services system. For this, innovations and health systems research are essential. Appropriate and efficacious approaches should be developed and tested to suit local situations. Ingenuity will be necessary for meaningful and full utilization of available additional manpower running in about half a million in our efforts to strengthen general health services as a backbone of our Public Health System.

(c) ***Reorganization of Ministry of Health and Family Welfare, and Directorate General of Health Services*** — These first two measures can be taken care of by restructuring and reorganizing the Ministry of Health and Family Welfare, its Departments and Directorate general of Health Services into an integrated and composite organization, as detailed in Appendix B.

(d) ***Developmental Management, Decentralization, PRIs, NGOs, & Community*** — In the management

of integrated health and family Welfare Services, through the States and U.Ts. Health Directorates, primary health care approach has to be promoted and strengthened. Management and developmental tools such as a MIS (Management Information System), IEC (Information, Education and Communication), monitoring and evaluation, supportive supervision, and Health Systems Research (HSR) should receive special and uninterrupted attention. Epidemiology-based management is a key to the success of any public health measure; and should provide the foundation. Other vital areas include decentralization and community involvement through strengthening governance through *PRIs*, involvement of NGOs, and promotion of Self-help Groups, Mahila Mandals and Youth Clubs, etc. Appendix C covers a note on privatization and public health system. All this should be a part of training of Health Officers of the proposed cadre of Indian Public Health Service (IPHS).

(e) ***Coordination of Multiple 'H&FW' Programmes funded by different Funding Agencies*** — External assistance — donations and soft loans — is available through the International and Bilateral agencies. With varied objectives, views, interests and other agendas of the funding agencies, several problems have arisen and conflicting situations have been generated. It is, therefore, essential to coordinate and club such external funding so that these additional resources are optimally utilized with mutual satisfaction. Emphasis should be on broader mission oriented and infrastructural strengthening agenda rather than focusing on a specific disease or programme. Overall aim is capacity building and growth.

(f) ***National and State level Technical Health Development Advisory Boards*** — With the complexities of health management, magnitude of the problems, rapidly changing situations and diverse conditions in which one has to operate, and high technology and scientific demands, Governmental Health Services Organization cannot function optimally without high level experts advice and consultation. For this purpose and to ensure formulation of appropriate policy and technical excellence, it is essential to constitute a "Technical Advisory / Consultative High-power Board" under the Chairpersonship of the Health Minister, Vice-Chairpersonship of Member (Health) Planning Commission, four to five Public Health Experts, two Directors of Health Services of States, and DGHS (Planning, HMD and HSR) as Member Secretary.



(g) *Establishment of the Indian Public Health Service on par with that of Indian Administrative Service*<sup>11</sup> – Significance of effective leadership and technical direction has been deliberated earlier. Administratively, abolition of the Indian Medical Service was a major mistake after independence. For public health manpower, this was a debacle. Plight of public health has become worse with the integration of medical and public health services. Instead of getting impetus, discipline of public health was at disadvantage and became a casualty.

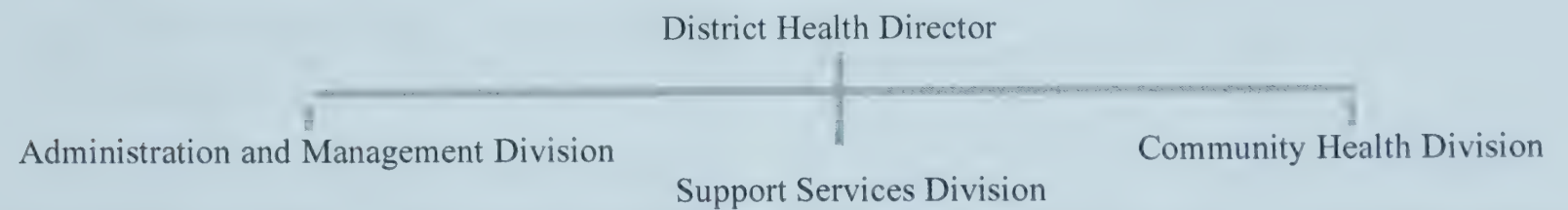
Most of the current failures, e. g., the failure to control communicable diseases, poor and distorted health manpower development, etc., can be traced to the moribund public health system in the country. In order to ensure efficient administration of the reorganized setup of the Health System, to optimize the performance, attract talent and to guarantee career development, and to improve the quality of life of our people, the earlier we establish the IPHS the better. These officers should man the public health system from district level upwards.

References:

1. National Health Policy, Ministry of Health and Family Welfare, Government of India, 1983.
2. Banerjee, Debabar, National Health Policy and its Implementation, Economic & Political Weekly, January 22, 1983: 105-108.
3. Government of India, Ministry of Health and Family Welfare, Health For All by 2000 A.D., Report of the Sub-Group on Health Services Organization to Achieve HFA by 2000 A.D.: 89-117, New Delhi, 1981.
4. European Commission, The Crucial Role of Public Health in Relation to reform in India, Government of India, Department of Family Welfare, ECTA Discussion Papers 2001/14, October 2001.
5. Sahani, A., Leadership and Human Resources Development for Health Care, ISHA Professional Development Series-III, Indian Society of Health Administrators, Bangalore, pp 61-63, 1990.
6. Terris Milton, Editorial, The Distinction between Public Health and Community/Social/Preventive Medicine, Journal of Public Health Policy, 6: 435-449, 1985.
7. Deodhar, N.S., University of Health Sciences, Conceptual Model, National Seminar on Current Challenges in Medical Education, Taj International Hotel, Bombay, 19-20 December 1984.
8. Deodhar, N.S., Report of the Committee on Establishment of Universities of Health Sciences in Various States, Directorate General of Health Services, GOI, New Delhi, pp 37, September 1995.
9. Deodhar, N.S., Rationalizing General Practice of Medicine, Key-Note Address, Integrated Health Policy, Vivekanand Medical Research Centre, Latur, Maharashtra, 27<sup>th</sup> June 2003.
10. Banerjee Debabar, FRCH News Letter, IX, No. 1-2, January-February 1995.
11. Deodhar, N.S., Resuscitating Public Health Practice in India, The Writings in Preventive Medicine and Public Health, Volume 2, pp 966, December2003.

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Appendix A: District Health Organizational Structure



⚙ Administration and Management Division –

- |                             |                          |                                   |
|-----------------------------|--------------------------|-----------------------------------|
| Administrative Officer, I/C |                          |                                   |
| Finance Officer             | Food and Drug Controller | Officer I/C Establishment         |
| Officer I/C Transport       | Security Officer         | Plus: Support staff for the above |

⚙ Community Health Division –

○ Bureau of Sanitation and Hygiene:

- |   |  |
|---|--|
| Executive/Superintendent Engineer, Public Health, I/C | Deputy Engineer, I/C Water Supply      |
| Deputy Engineer I/C Waste Disposal                    | Plus: Technical and supportive staff ↑ |

○ Bureau of Disease Control:

- |                              |                                       |
|------------------------------|---------------------------------------|
| District Health Officer, I/C | Deputy DHO, I/C Vector Borne Diseases |
|------------------------------|---------------------------------------|

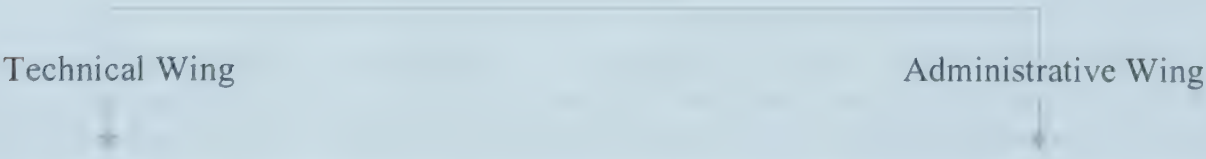


Deputy DHO, I/C Water Borne Diseases Deputy DHO, I/C Other Diseases	Deputy DHO, I/C Respiratory Diseases Plus: Technical and supportive staff ↑
○ Bureau of Health of the Women and Children:  Deputy DHO, I/C MCH Deputy DHO, I/C School Health Deputy DHO, I/C Family Welfare	Deputy DHO, I/C Nutrition Deputy DHO, I/C Immunization Plus: Technical and supportive staff ↑
○ Bureau of Health IEC:  Deputy DHO, I/C Health IEC Deputy DHO, I/C NGOs and Public Relations Deputy DHO, I/C O & M, and Private Practice	Deputy DHO, I/C Occupational Health Plus: Technical and supportive staff ↑
✱ <b>Support Services Division –</b>	
○ Bureau of Epidemiology and Statistics:  District Epidemiologist, I/C Sr. Statistician, Vital Statistics Deputy DHO, Epidemiological Surveillance	Sr. Statistician, Morbidity Plus: Technical and supportive staff ↑
○ Bureau of General Health Services:  District Health Officer, I/C Deputy DHO, HMIS and Monitoring	Deputy DHO, Training and development Plus: Technical and supportive staff ↑
○ Bureau of Laboratory Services:  District Health Officer, I/C Laboratories Officer, Microbiology & Parasitology Officer, Food and Drugs	Officer, Environmental Health Officer, Serology & Clinical Pathology Plus: Technical and supportive staff ↑

**Appendix B: Ministry of Public Health**

Union Minister of Health and Family Welfare

Secretary and Commissioner Health, IPHS  
(Public Health Specialist)



✱ **Technical Wing —**

- DGHS (PH):
  - Addl. DGHS (PH)  
DDG, ADG, DADG I/C programmes  
and other functions, as required      Plus: Technical and supportive staff ↑
  - Addl. DGHS (PRIs)  
DDG, ADG, DADG I/C programmes  
and other functions, as required      Plus: Technical and supportive staff ↑
- DGHS (CGHS, CHS):



- Addl. DGHS (Hospital)  
DDG, ADG, DADG I/C programmes  
and other functions, as required      Plus: Technical and supportive staff ↑
- Addl. DGHS (Medical)  
DDG, ADG, DADG I/C programmes  
and other functions, as required      Plus: Technical and supportive staff ↑
- DGHS (Planning and Development, HMD, HSR):
  - Addl. DGHS (Planning)  
DDG, ADG, DADG I/C programmes  
and other functions, as required      Plus: Technical and supportive staff ↑
  - Addl. DGHS (HMD)  
DDG, ADG, DADG I/C programmes  
and other functions, as required      Plus: Technical and supportive staff ↑
  - Addl. DGHS (HSR)  
DDG, ADG, DADG I/C programmes  
and other functions, as required      Plus: Technical and supportive staff ↑
  - Addl. DGHS (ISM)  
DDG (Ayurveda)      DDG (Unani)  
DDG (Homeopathy)      Plus: Technical and supportive staff ↑
  - Addl. DGHS (Food and Drugs)  
DDG (Drugs)      DDG (Food)  
Plus: Technical and supportive staff ↑

- ✱ **Administrative Wing** — This wing will provide general administrative support to the technical wing establishment.

- Addl. Secretary, IAS:
  - Jt. Secretary (Personnel Management)
  - Jt. Secretary (Logistics and Supplies)
  - Jt. Secretary (Parliament, Law, NGOs.)
  - Jt. Secretary (Financial Management)
  - Jt. Secretary (CGHS)

(Note: All Jt. Secretaries will have necessary supportive staff ↑)

N.B. Existing personnel should be appropriately distributed under this broad structure taking into consideration the expected workload and the technical/administrative issues. Since health is the State subject, there is large scope to prune the staff. Officers and supporting paraphernalia, CHS services will form and retain the current organization under DGHS (CGHS wing and CHS cadre). Other federal function officer's posts will be filled through IPHS cadre officers, and till them through open and direct selection through all India basis, both the State and CHS cadres.

## Appendix C: Privatization and Public Health System

In consequence of liberalization of economic policy, it has become fashionable to talk of privatization of the health services. There are serious implications in this suggestion. When one speaks of providing health services privately, first essential requirement is to pay fees for the services

provided. Private Service is primarily a business for profit, and needs that one gets maximum returns for the investment and assets. While this may be feasible in providing curative or medical services, it will be impossible in the case of public health services where investments will be high and



monetary returns negligible. This is particularly true of developing country like India where most of the people will not be able to bear the full service charge for say water supply or sewerage, if one has to recover full investment over a short period or expects maximum returns on the investment. In fact, private agency will not come forward for public health services like environmental sanitation, epidemiological services, IEC, etc. Thus, one should talk of privatization of medical care only; in public health services, scope for privatization is very limited, if any.

Notwithstanding the above, the fact is that in India, even today, the large bulk of the health (medical) system is in the private sector. The share of the private health sector is between four to five per cent of GNP. At the current prices, it amounts to between Rs. 16,000 and 20,000 crores per year.<sup>1</sup> It is estimated that 69 per cent of the doctors qualified in modern medicine are in private practice.<sup>1</sup> This percentage is about 90 for the practitioners, both qualified and non-qualified, of other systems of medicine.<sup>1</sup> Census of medical practitioners in Ahmednagar District, Maharashtra, showed that 92 per cent of all the practitioners were in the private sector.<sup>1</sup> Rhode and Vishwanath<sup>1</sup> found that in a rural area nearly 62 per cent of the medical practitioners were without formal qualification. FRCH census of hospitals, nursing homes, etc., in Ahmednagar District, Maharashtra, found that 82 per cent of hospitals & nursing homes were privately owned, four per cent were in voluntary sector, and only seven per cent belonged to Government.<sup>1</sup> In Andhra Pradesh, a survey report states that about 63 per cent of the hospitals and 55 per cent of hospital beds were in private sector.<sup>1</sup>

While 83 per cent of the modern medical colleges are in public sector, majority of medical colleges of the other systems of medicine are in the private sector, 55% Ayurveda, 65% Unani, and 76% Homeopathy.<sup>1</sup>

While 80 to 90 per cent of all the drugs are produced in the private sector, most of manufacturers are multi-national firms. In India, there are nearly 60,000 drugs marketed under different brand names, while only 250 drugs are identified by World Health Organization as essential and sufficient. As far as possible, we should not depend on other countries for equipment, instruments, drugs and other supplies. Local industries should be promoted and encouraged. We have many examples of indige-

nously developed and manufactures basic drugs, vaccines, instruments, electronic equipment, etc.

**Suggestions:** 1. There is good scope for privatization of medical services which include both ambulatory and hospital care for the diagnosis and treatment for the sick, and such personalized medical and nursing attention. Whenever it is economically possible, even the poor prefer to go to a private doctor than a government hospital or Centre for treatment. Only exception is of the high level Government Officials and the politicians who receive special attention and facilities at Government Institutions. People don't mind spending for the drugs, fee for examination and investigations, operation, etc.

2. There is no need for the Government to provide free medical care and free food to the every patient in Government hospitals. It is true that a small percentage of people do not afford to pay even small amounts for the medical care they need. These people should be provided for free medical facilities, both ambulatory and inpatient. There are many ways to do this, e.g., free insurance policy, or green card for free treatment at the Government Centres, or other places recognized for the purpose, etc. All families below the poverty-line should be made eligible.

3. Tertiary health service facilities such as for diagnosis, consultation and treatment include: CAT, MRI and other scans; sonography, endoscopies, special biochemical and molecular biological studies, angiography, surgery for brain or heart or kidney disorders, etc. This field is highly technical, expensive and demands expert management. On careful consideration from many aspects, the approach paper for the 7<sup>th</sup> Five-Year-Plan, recommends that the investment in and management of tertiary health should be left for the private sector. Government should provide facilities needed for establishment of this type of services. In return, it should ensure that concerned private hospital or institution provides and reserves adequate number of beds, for the poor and other eligible persons referred to them by the hospitals and/or officers recognized by the Government for the purpose. Such a care should be given free or at subsidized or prescribed cost.

4. Will privatization of Government dispensaries and small hospitals help and improve the medical services? Will this adversely affect the public health care? Many of the public and Government dispensaries and small hospitals are not fully used



by the people. Can such places be handed over to the private agencies? Instead of opening new curative services, should Government use private establishments? These and similar questions are to be addressed seriously and implications understood.

5. With growing competition, high investments, enlarging middle class population, change in the lifestyles, etc.; the private sector is expanding rapidly in India, especially in the urban areas. Not only the rising cost of medical treatment and consultation has emerged as a pressing concern, but sub-standard, unethical, exploitative, and unscrupulous manner in which some private

practitioners, hospitals, and other institutions conduct 'business', has also posed a big problem. Many nursing homes and other establishments in many cities do not have even the basic amenities required for scientific and proper medical care. There is urgent need for the control and regulation of the private medical practice. In countries such as Australia, this has been attempted well by the Australian Medical Association. This is possibly the best way of self-regulation by the medical profession. However, the Central and State Governments shall have to discharge their responsibility.

### Reference:

1. Mandraj Sunit, The Private Health Sector in India: A need for Regulation, a paper presented at a seminar, Foundation for Research in Community Health, Mumbai. This was also a background paper for GOI, Ministry of Health and Family Welfare, the Expert Committee to Comprehensively Review the Public Health System in the Country and Recommend Measures for Strengthening, 1995.

(A paper commissioned by the Independent Commission on Health in India, New Delhi, in preparation of its second report entitled "India's Road Map to Primary Health Care".)



### 3 Communication to National Commission on Macroeconomics & Health on Issues under its Consideration

Dear Shri Alok Mukhopadhyay,

This is in response to your letter CE-6 of 22<sup>nd</sup> July 2004, regarding National Commission on Microeconomic and Health. My views, comments, recommendations, etc., on the issues you have listed are detailed in this document. I have already voiced these concerns and solutions from time to time on various occasions at national and international levels and for consideration of various Government and voluntary organizations. Nothing tangible has happened and even commonsense has not prevailed so far.

During my last visit to Delhi, Dr. Ranjit Roy Chaudhury who is the Chairman of one of the sub-committees of the National Commission on Microeconomic and Health met me along with Dr. Ajay Mahal and Dr. Avtar Singh Dua who are the members of the said sub-committee. We had a long discussion and I wrote to them subsequently. It appears to me that the new Government is as shy and keen to do wrong things, e.g., promote (?) medical care (to the rich and not the poor) under the garb of 'health care'. None of our politicians, bureaucrats and even the intellectuals seem to have understood and have insight in what constitutes health care. Some of them may be knowing but pretend ignorance and continue to undertake populist measures such as opening All India or National Institutes of Medical Sciences, when people die of starvation or accidents, compensations are announced (may not actually reach) without any measures or even thought of preventing recurrence. I have written all this because unless some one (group) in authority develops concern and perhaps obsession, nothing will happen except I wasting my time and couple of papers contributing to '*raddi* (waste paper)'. I am really fade-up doing things for those who act for self-promotion and who maintain status co and perpetuate wrong things while talking of big words such as epidemiology, Panchayati Raj, have-nots, poverty alleviation, equity, and so on. Bureaucrats tend to create rather than remove obstacles on the ways of performance, a negative leadership.

I have earlier communicated some of the key issues to Dr. Anbumani Ramadoss, Union Minister for Health; Shri. Sam Pitroda and Shri Montek Singh Ahluwalia. As expected two of them have not even acknowledge the receipt, except Shri

Ahluwalia who was kind enough to respond. Nevertheless, I get pleasure and satisfaction of doing thankless job since I believe and hope that some day these may be used and the poor and underprivileged of our lot will be benefited. I am also aware that the probability is very low though.

Thanking you and with best regards,

Yours Sincerely, sd

#### Communication to National Commission on Macroeconomics and Health on the Issues under its Consideration

**Introduction:** This document has been prepared in response to the request to that effect from Shri. Alok Mukhopadyay, Member of the Commission and Chief Executive, Voluntary Health Association of India. It is hoped that the Commission will be able to consider and deliberate on this, and result in taking steps to provide *Health For All Have-nots*.

#### 1. Priority areas for health interventions:

Understand real meaning of health so that the interventions are appropriate and may be effective if the governance (management) is honest to the purpose and of high quality. I am not reproducing here a table showing the difference between health care and medical 'care', but reproducing a table that illustrates where we have gone wrong by blindly following the Western World and advice of the International Agencies and 'Experts'. We have to apply epidemiology (most of our epidemiology has remained below shoulders). The priorities for health care are very clear from this table. For this we have to go back to the real Health For All through Primary Health Care Approach. I have said real because WHO, World Bank, etc., have now rolled back from *Alma Ata* Declaration and what they are advocating now is not in our national interest, in fact of all the developing countries. I hope that we realize this. Below is a copy of one of my papers which will make the real issues more clear and explicit, and get at appropriate interventions with which the next issue deals with. Medicine v/s Health: Least we forget: "The current focus on therapeutic intervention has gradually led to the myth that good health is primarily the result of medical intervention and hospital services. Besides, it created a lack of



real understanding that health is governed by and a reflection of the social and living conditions of the community. Medical and surgical treatment claims to offer instant & personal gratification to patients, providers and politicians, as opposed to the claimed long-term benefits of preventive health that may or may not materialize. It also finds greater favour with less well-informed societies. In addition, the emphasis on curative medicine is reinforced by the growth of the medical and pharmaceutical industry and medical associations, which have a powerful influence on Governments.”<sup>1</sup>

“In the mid-1970s various researches revealed that health improvement can best be attained by behaviour modification and environmental change. This realization led to the fourth phase of public health, which many experts in public health call the New Public Health. Public health is about the complex interaction between individual health and health beliefs and the intricate features of populations: their social, political, environmental and economic realities. It is in this context we should understand individual lifestyle, genetic and other biological risk factors. New public health focuses on environmental factors in a broad sense – social and psychological as well as physical – and a healthy lifestyle which consequently necessitates that health be placed in the mainstream of development.”<sup>1</sup>

“The lives and health of people are unequally affected by ongoing development. Modernization, better socio-economic condition and healthy environment will certainly allow some sectors of the population to improve health. However, the key issue is how health improvements become distributed in the entire population, i.e., the equity of health. For all the extraordinary advances in health achieved in this century, there is still too much suffering around.”<sup>1</sup>

We in India, even the scientists and educated, tend to blindly follow the Western Developed Countries in understanding “health care” and “public health needs”. The people and Governments in those countries have already taken care of their basic health needs. They have provided and maintained safe, adequate and easily accessible water supply, healthy housing, nutritional security (to the extent of over-feeding), sanitary hygienic disposal of sewage and solid wastes, control of air pollution, high level of education, safer occupational and industrial environments, etc. Naturally,

the issues left for them include medical care (which they call health care), hospital services and high costs, health insurance and equity, control and prevention of non-communicable diseases, mental health, accidents and violence, etc.

Unfortunately, in epidemiological transition with all kinds of diversities and variations in Indian sub-continent, we are facing double or tribal burden. However, in planning and development, we incline heavily for “India” (our privileged few) than “Bharat” – our real country. Politicians, planners & (so-called) administrators talk in public about the people – the poor and their problems, but when it comes to action, what is delivered is a lip-service or low quality, ineffective, unsatisfactory, inadequate, temporary move – the stale crumbs.

It is of little use to define priorities and identify key interventions, if the health system cannot deliver them or fail to reach the poor. To be effective, our health systems development and strengthening should become a strategy.

The relevance and quality of research results, and scientific and technological developments, by themselves, may not benefit the people, unless the scientists participate in policy process. Policies should lead to need-based intervention programmes and their effective and sustained implementation. For this to happen pressure building – both public and professional – is necessary. Active and wide dissemination of adequately validated research results and successful interventions (arising out of pilot studies) which are tested for effectiveness in community-based demonstration projects, through user-friendly reports, newspaper articles, professional seminars, mass media, and electronic and another communication channels, is essential.<sup>2</sup> In addition to pursuit of scientific research and technological development, it is essential to have concern, commitment and inspiration for application of the advancement of knowledge and skills for human welfare. Positive, persuasive and persevering efforts are necessary to get research findings adopted as a national/local policy. Scientific and professional organizations are required to work long and hard to gain acceptance for the course of action and interventions found necessary on the basis of their work for upliftment of the poor, improved quality of life of our people and making India a developed country with its own culture, spirituality and distinctive culture.



Determinants of Health	Western Countries	India
Safe and adequate water supply	Universal	Poor
Sanitary disposal of excreta and all wastes	Universal	Bad
Home & Occupation in pollution-free surroundings	Good	Dismal
Adequate food supply	Excellent	No Equity
Capacity to purchase food	Excellent	Poor
Food and Personal Hygiene	Good	Very Bad
Education	High level	Low
Social and Economic justice	O.K.	Not for the Poor
Medical and allied services	<i>Present concern</i>	<i>High priority (but is ill-advised)</i>

Yet, we still give highest priority to medical care and neglect public health service.

**References:**

1. Uton Muchtar Rafei, Regional Director, WHO, SEARO, New Delhi, Changing Global Scenario and Public Health for the Next Millennium, Keynote address, WHO Regional Conference on Public Health in South East Asia in the 21<sup>st</sup> Century, Calcutta, 22-24 November 1999.

2. Gwatkin, Davidson R., IHPP Brief, International Health Policy Programme, USA. April 1999.

**2. A set of Essential Interventions:**

The priorities described in the earlier issue directly lead to the essential public health interventions. Enough of scientific and technology information is available for designing interventions. In this regard, it must be remembered that with all kinds of diversities and regional differences we have in our country, it would be a grave mistake, a blunder, even to seek for a uniform solution. There is no alternative to total decentralized approach and empowering the local self-governments (PRIs and Nagarpalikas) and the Gram Sabhas to take initiative, plan locally and progress by satisfying the local needs and solving local problems. I will not therefore list and elaborate elementary public health measures. The bigger issue is how we are going to effectively implement. Our health system is moribund and needs rejuvenation and rebuilding. At this stage it may suffice for me to mention my power point presentation some time ago at a seminar in Pravara, which Shri Vikhe Patil inaugurated, for perusal of the Commission.

**3. A Multi-layer Programme of Health-System Strengthening:**

We have not realized that health sciences are multi- and trans-disciplinary. Our Health Ministries are truly the ‘ill-health’ Ministries because they hardly ever go beyond creative medicine. Further, this care is of low quality and not satisfactory even to the poor who prefer to go to

a private medical practitioner and in the process may incur debt I have already sent for the Independent Commission on Health in India (ICHI), my paper entitled ‘Evoking Primary Health Care Approach, through Decentralization and Panchayati Raj System’. This paper deals comprehensively and exhaustively this issue and provides specific recommendations. In fact, it could be an approach paper for the health plan. My second paper which is supplementary to the first is entitled ‘Revamping existing Governmental Health Infrastructure for Primary Health Care’. This is also with the ICHI and gives the desirable organizational changes and modifications to make them capable to play the new role of supporting and empowering the local self-governments and the people through Gram Sabhas, etc. Lastly, without efficient managers, nothing will happen. Competent managers are to be selected and leaders identified. One cannot really train any person selected at random to be a competent manager or a leader. Government shall have to hand-pick people. These two papers are with you.

**4. Reforms for removing non-financial constraints:**

It is said that we are good planner and bad in implementation. Our governance & management are lousy, apathetic, elite orientated and have no real commitment for the welfare of the poor, and sustained development. We survive because there are some exceptions and entrepreneurship and



tolerance (ignorance) of our people. Thus, our non-financial constraints are soft in nature and very hard to rectify unless we mean business. The reforms should be directed to rectify the underlying causes of our failure: 1. Lack of public and political support. 2. Leadership crisis. 3. Health Manpower crisis. 4. Mismatched organizational set-up. 5. Undue centralization. 6. Weakness of public health institutions. 7. Professional inadequacy and apathy. 8. Neglect of research. 9. Conservative bureaucratic administration. 10. Ignoring expert opinions. 11. Lack of true partner-ship with the voluntary agencies. 12. Private sector factors. 13. Lack of inter-sectoral approach and collaboration. 14. Antagonistic impact of technological development. 15. Adverse influence of international organizations and external funding agencies.

Following are some of the critical reforms which will help to limit the restrictions:

- a. **Ensure necessary leadership:** Directors and top level managers should qualify in public health and have good track record of performance and leadership.
- b. **Reorganization of the Health Ministries and Departments:** Decentralization and delivery of public health services to district and sub-district level should be brought into the full control of the PRIs and Municipalities.
- c. **“Administration”** without accountability should give way to “Management with optimum performance. Advocacy is necessary to promote public health as an essential component for health development. It is necessary to be proactive in this regard.
- d. **Strengthen public health system** by creating career structures by establishing a new cadre of Indian Health Service (HIS) on par with that of IAS. This has to be done at national, state and district levels; and establish policies to mandate competent background and relevant expertise for persons responsible for health of the population.
- e. **Strengthen and reform public health education and Institutions:** Establish a chain of Post-graduate Schools of Public Health for improving the pool of public health expertise & capacity building. Emphasize the importance of public health as a multi-disciplinary and endeavour to get it out of clutches & monopoly of medical fraternity.
- f. **Build Health Systems Research** as a component (R&D) of health management and administration. This will extend the benefits of science and technology to the people.
- g. **Initiate massive IEC drive** for making the people, especially the “have-nots” self-reliant in

health care, change behaviour and making lifestyles conducive to health.

h. **Strengthen PRIs for efficient delivery of primary health care** to the people by full devolution of authority and allocation of adequate resources and other supports. Promote and support area-specific decentralized planning. Beginning with every village and using local data, this has to be done for each district. Governments should be catalytic.

i. **Initiate inter-sectoral dialogue and programmes** for promotion of environmental health, poverty alleviation, education and information transfer, welfare of women and children, care of the disabled, nutrition security, occupational safety, healthy housing, etc.

j. **Team work:** Governmental organizations, NGOs, voluntary bodies, corporate sector and the society will have to work in harmony, as a team with mutual respect.

k. **Our big population should be considered as a best resource** and this asset should be nurtured for rapid economic growth, prosperity and improved quality of life.

l. **Poverty should be tackled in innovative ways** for upliftment of the poor who should be enabled to pay for basic family-life need in 5 years covering all below poverty-line.

m. **Globalization and economic reforms** are inevitable. Ways of countering and neutralizing its drawbacks should be sought.

n. **Constitute a team of consultants** consisting of renowned public health experts, epidemiologists, and executive managers to advise governments and local bodies.

o. **Initiate ‘Operation Public Health’** with determination that the public health system in India becomes strong enough to provide good health to the ‘have-nots’, accelerate health promotion, and reduce disparities substantially, if not eliminated.

However, these systems reforms notwithstanding, public health system cannot be strengthened without additional expenditures. Allocation of funds should be liberal and substantially enhanced. Cost-effectiveness and appropriateness should be ensured.

### **5. Targets for reduction of disease burden:**

Our policy and strategies for the control of diseases should be rationalized on the basis of epidemiological principles and experience. Pre-requisite is to review all the existing disease control/eradication programmes. Independent Commission on Health in India has published my

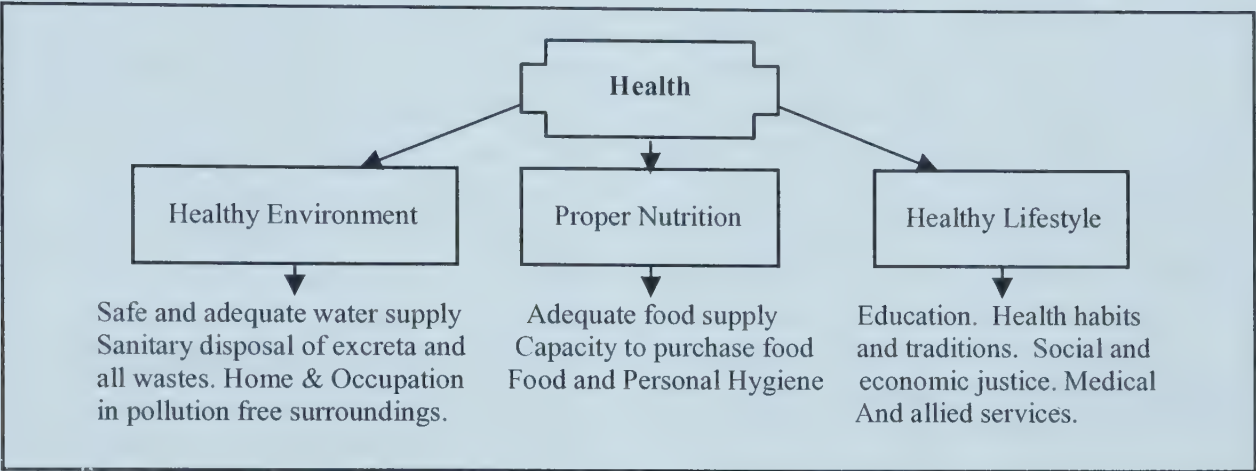


monograph entitled, ‘Health Situation in India: 2001 with special reference to the control of communicable diseases. The issue is comprehensively covered in this monograph (copy enclosed) which provides new strategies and approaches to deal with this long standing burden. The targets will have to be linked with the new programmes. It may be mentioned that we neither have the required information for epidemiological modeling nor there is need for such modeling.

**6. Key Health Synergies with other sectors:**

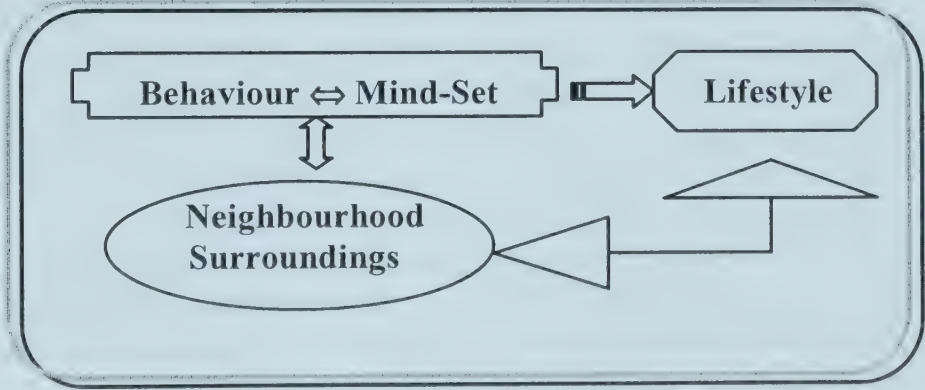
This issue has been fully covered under my paper entitled ‘Evoking Primary Health Care Approach, through Decentralization and Panchayati Raj System’. The issue of intersectoral coordination and collaboration has been totally ignored and neglected so far. Diagram I indicates major determinants of health. Even a child can tell us that without all sectors contributing their might, health development is not possible.

**Diagram I: Major Determinants of Health**



Further, lifestyle which largely makes difference between health and disease, is a very complex. It is very difficult to bring about changes in lifestyles of the people howsoever important it may be in our efforts, especially to prevent the diseases of the affluence, viz. diabetes, coronary heart disease, high blood pressure, cancer, etc. Diagram II shows the factors and interactions that determine the ways in which people live. These two diagrams help to identify the key health synergies. Useful in its deliberation. I will be pleased to provide any clarification or elaboration, if and as required.

**Diagram II: Genesis of lifestyle**



(In response to letter CE-6 of 22<sup>nd</sup> July 2004, from Shri Alok Mukhopadhyay Member, National Commission on Microeconomic and Health, Government of India, New Delhi.)



## 4. Changing Strategies and Challenges in Communication in Health Development in India

### Introduction:

It is only recently that human beings are talking about information technology. However, in the process of initiation and development of life-forms the nature, with its self-contained science and technology base, has perfected communication technology – both hardware and software aspects. The efficiency is remarkable: (a) extending over the entire process of information gathering through sensory mechanisms ; (b) judging its utility by screening quality of data in terms of relevance, reliability, accuracy, timeliness, etc. ; (c) critically analyzing and storing it; (d) net-working and cross-checking the new data and information with the stored data base ; (e) the past experience and lessons learnt are retrieved from the memory; (f) organizing the information; and (g) developing afferent channels for transferring the information in a programmed sequence and timing so as to initiate actions which are predetermined and performance also pre-designed. Even the probable adversities are anticipated and mid-term corrections are built-in. the end is further addition and enrichment of data-base of knowledge, experience, wisdom and skills. This is an endless process. Communication is a vital characteristic of all forms of life from the viruses having relatively simple mechanisms at one end of the spectrum and to the highly developed psycho-neurological mechanisms of the human brain and nervous system.

The term communication which is used in this chapter, means a mechanisms by which given set of information, knowledge, technique, skills, etc., is transferred effectively from an appropriate source (animate or inanimate) to the recipients (individual, group or community) in such a manner that the message is received and learnt correctly and resulting in response such as predetermined action or performance, or change in action or behaviors or lifestyle. The history of human development dates back to about two million years. However, it is during the last two centuries of industrial revolution, and scientific and technological advancement that the subject of communication is gaining importance and attention. Can we take lessons and do what the nature has done? How we do it?

Several programmes for socio-economic development for welfare of the people have been launched, one of the objectives being health development and improved quality of life. Success and sustenance of such planned development depend largely on the active participation of the people for whom the programmes are intended. In final analysis, every development rests on the human resource. With limited financial allocation, the question of cost-benefit & cost-effectiveness always crops up. Unfortunately, in India performance of most of the national health programmes has been far from satisfactory. In practice, involvement and participation of the people was at the minimum. Nevertheless, problems such as population growth and disease burden were to be addressed urgently. It is in this context that communication was accorded high priority by the Government of India. It is interesting to review what was done and what happened. It is with this background that the evolution of communication in health development is being considered in this chapter.

### Practice of Public Health

It is strange that in event of unsatisfactory performance or failure to meet 'targets', our health administrators fail to examine and study the causes of shortcoming and rectify them or seek for alternative approaches. In most of the instances, all that they did was to just change the name/title of the programme without revising strategies and interventions, etc. Even the international agencies have fallen in this trap. Family Planning was progressively renamed as Family Welfare, and Reproductive and Child Health Programme. Classical Maternal and Child Health (MCH) also received similar dressings. Communication was equated to health education and then to IEC (Information, Education and Communication) during the last decade. The beaten path was followed without assessing the impact. The efforts of health education were half-hearted and remained confined to different disease control and family welfare programmes. There was neither talk of integration nor any dialogue with the Education Ministry. Not satisfied with the result of the interventions, various approaches and strategies



were tried to involve people ad ensure active participation. It was a process of trial and error. There was not much of success.

**The Story of Communication Agenda**

Community Development Programme was launched in I Five-Year-Plan. Health development was one of its components. In this task Primary Health Centre was to play a pivotal role. Health education was one of the functions assigned even to this early set-up. With the lessons learnt during last fifty years, both nationally and internationally, the current talk is about communication for behavioral change. Programme of democratic decentralization and empowerment of Panchayati Raj Institutions (PRIs) are introduced. Early results in some States are positive and encouraging. Correct recipe for effective communication seems to be eluding even the experts.

**The Chain of Events and Strategies**

**10. Community Development Programme :** General education including social education and adult education were an integral part of the activities under this early programme for developing a welfare society. The Primary Health Centre (PHC) was charged with the responsibility

of providing integrated medical and public health services including health and nutrition education, to the people. Not only the medical Officer in charge of the PHC was expected to use every opportunity for a little judicious health education, but health education was the duty of all the field staff of PHC. Though the vertical programmes for control of communicable diseases could achieve some success initially, the health services in general failed to create community awareness of the health needs and to mobilize public opinion and action for improvement of health status. Why these early health education programmes failed? It seems that we had no insight into the complexities and ways of communication then. The center of attention was the methods without consideration of the outcome, e.g., evaluation indicators used were number of poster or messages on the road, number of meetings etc. Education was not the priority of the politicians and administrators. To illustrate, although universal primary education is mandatory under the Constitution of India, this has not been done till today. In retrospect, the congruence between the functions stipulated for the PHC and the cardinal elements of Primary Health Care is strange and surprising high (Table 1). The time lag between these two is over three decades. This testifies the oft quoted statement that we in India are good planners but poor implementers.

**Table 1:** Functions of Primary Health Centre and eight elements of Primary Health Care

Function of Primary Health Centre	Nine elements of Primary health Care
1. Medical care	1. Elementary care and appropriate treatment of common diseases and injuries
2. Control of Communicable Diseases	2.Provision of essential drugs
3. Sanitation especially provision of safe water and sanitary disposal of excreta	3. Adequate food and proper nutrition
4. Maternal and Child Health Services	4. Prevention and control of locally endemic diseases
5. School Health	5. Immunization against major communicable disease
6. Vital Statistics	6. Safe and adequate water supply and basic sanitation, sanitary disposal of excreta and refuse and housing
7. Health Education	7. Health care of mothers and children including family welfare
	8. Health Education effective communication and self-reliance

**11. Health Education:** After eradication of smallpox and diminishing returns of various vertical disease control programmes, basic services were introduced. Grass-roots staff was pooled and integrated into the Basic Health Workers (BHWs) –

forerunners of multipurpose workers. With adoption of the Multipurpose Workers Scheme, Health Education function was revived. Central Health Education Bureau was established in Delhi under the Ministry of Health and Family Welfare.



Then new State Bureaus and cadre of Health Educators was established. Block Extension Educators were appointed. Preparation and distribution of health education materials got the priority. Most of the health education material was in English and very little in the local languages. Mass media were extensively used. Attempts such as holding village meetings were made to introduce two-way interpersonal communication. Yet the outcome was not satisfactory. Involvement and participation of the people was not materialized for all practical purposes.

**12. Information, Education & Communication (IEC):** Initially, Family Planning Programme was started by establishing Family Planning Clinics. This approach failed to attract the people. Therefore, Extension Approach was introduced and Family Planning Workers (or Motivators in Maharashtra) were appointed for communicating the message to the people and providing services. However, it was hard to motivate the people to adopt family planning methods – vasectomy in those days – and the set targets could not be reached in spite of all kinds of incentives offered to the people. The Government Departments then progressively resorted to coercion. The results were disastrous and the then Government lost its power. The new Government changed the name of the programme to that of Family Welfare Programme. However, it took years before the topics such as small family norm, etc., were talked about. In order to take the people along, health education received another booster. By now the term health education was no more fashionable and got lost in the history. The targets were dropped (in practice only on paper). Communication experts coined a new word and new strategy, viz. IEC (Information, Education and Communication). Electronic media and modern communication and education technology were put into the gear. Though impressive, this paraphrasing of terminology has not made any difference. The activities have remained the same old wine, but in a new bottle.

**13. Community Cooperation:** After initial success, most of the national programmes for the control / eradication of communicable diseases failed to give desired performance. The case-holding and the percentage of the patients of leprosy and tuberculosis completing treatment were poor. Voluntary reporting of new cases was very low. Drop-out rates under the Universal Immunization Programme and school enrollment were alarmingly high. Utilization of the promotive

services such as MCH and other available assistance was poor. In the early stages of Malaria Control operations, people welcomed and cooperated for getting their houses sprayed with DDT emulsion although the spraying used to result in defacing the walls, etc., with DDT deposits. However, as soon as the bed-bugs got eradicated, this cooperation vanished although the new insecticides were soluble without leaving any trace on the walls. With such experience and situations many vertical disease control and eradication programmes designed various communication strategies and deployed extra field staff with the aim of securing involvement and active participation of the people. In some programmes such as for the prevention of iodine deficiency disorders, legal provisions were made to ensure that non-iodized salts are not available.

**14. Social Mobilization:** Global strategy, drafted in mid 1980's by the World Health Organization, for Health For All by the year 2000 recognized the need for Health Behaviour Research. This originated because of the feeling that non-and underutilization of the available health services facilities was due to the factors related to social behaviour and mobilization. Service of social scientists and anthropologists were sought. However, this was mostly the problem identification exercise, eluding solution. Social mobilization depends on proper social actions and solution lies in their appropriateness. The basic elements of social action are: (a) Leadership, (b) Group of people, and (c) Situation. These elements are interrelated and interdependent as shown in figure I.

Perspectives of the people, especially of those who are poor or underprivileged are the key-issues. What the people think? Why they think so? Such are the matters that need consideration. Meaningful relationship between the people and the health programmes has to be developed. One of the factors on which effective communication and community action depends is personal attributes such as ability to captivate and to win over. This is why the leaders such as Dr. Raj Arole and other leading volunteers who undertake micro-projects are able to win and get active involvement and participation of the people, e.g., Comprehensive Health Development Project, Jhamkhed. Health culture is pluralistic and communication technology has to match it. Social reformers and some politicians have effectively brought about social mobilization. What was the process? Slogan like 'Bharat Mahan', appearing on several trucks on the



road and new slogan ‘India Shining’ have produced entirely different impacts. What are the lessons and what more to learn and understand about communication technology and its transfer?

**15. Empowerment of People:** With the advent of Health For All through Primary Health Care approach, a new ear was opened. Health care facilities were to be developed and arranged around the life patterns of the population. Decentralization was considered as an essential prerequisite to fulfill local needs to of the community. Multisectoral cooperation and collaboration were the key factors. Manifold and multidirectional solutions were required. The vulnerable and needy groups were to be given special attention to ensure equity and accessibility. And community participation was considered as indispensable for the success. Thus, it was imperative to empower the people and organize the community, especially the vulnerable and needy groups, so that it can truly participate. Concrete inputs to empower people were more comprehensive, viz. IEC, income generation and authority. Full political & bureaucratic support, will

and pledge were identified as vital prerequisites.

Major shift in the focus was from the means to the effect and impact: i.e., from single tract ‘education’ to multi-pronged comprehensive approach to empower people. One of the major strategies was decentralization from the Central and State Government to the Panchayati Raj Institutions (PRIs) and Nagarpalikas – the local self – governments. Promotion of Self-Help Groups of the women in the villages have organized, activated and empowered village women. This has resulted in many places, development of confidence among them, initiated economic activity and income-generation, and participation in political and development activities, etc. There are instances in Maharashtra villages where the interest and initiative taken by the villagers have resulted in successful implementation of the schemes such as water supply and sanitation, water shed development, etc. Local leadership is also emerging. In brief, wherever decentralization has taken place and to the extent it has taken place, the results are evident (Table 2).

Table 2: Rural Health Indicators in Selected States by Extent of Empowerment of Panchayati Raj System in selected states in India

State Categories	CBR	CDR	IMR	EL	TFR	P<15	LR
<b>With Empowered PRI,s</b>							
Maharashtra	20.5	8.3	52	65.3	2.9	35.2	77.3
Tamil Nadu	19.1	8.6	50	65.2	2.1	28.8	73.5
Gujarat	26.5	8.3	68	61.5	3.3	33.7	70.0
Andhra Pradesh	21.0	8.8	71	61.6	2.6	33.6	70.9
Karnataka	23.4	7.8	65	61.7	2.6	32.4	67.0
West Bengal	22.5	6.8	52	64.5	2.9	35.5	69.2
Average for India	26.6	8.7	69	62.4	3.5	37.0	65.4
<b>With disabled PRI,s</b>							
Uttar Pradesh	32.6	10.2	83	61.2	4.8	40.8	57.4
Madhya Pradesh	32.2	10.4	90	56.8	4.1	39.2	64.1
Rajasthan	31.9	8.0	81	60.3	4.4	39.0	61.0
Bihar	31.8	8.2	62	63.6	4.5	41.3	47.5
Orissa	23.6	10.3	91	58.5	3.0	34.7	63.6
Assam	27.5	9.6	73	57.3	3.4	38.6	64.3

Source of Data: Foundation for Research in Health System (2203), Health Monitor, Ahemdabad, Sample Registration System Bulletin, Volume 37(2), October 2003.  
Health Information of India, 97-98. Min. H&FW, GOI, and Raja Sabha Un-starred Question No. 371, 04-03-2002.

Note: CBR = Crude Birth Rate, Rural 2002  
IMR = Infant Mortality Rate, Rural 2002  
EL = Expectation of Life at Birth, 1996-2001, estimates



P<15	=	Percentage of Population below 15 Years of Age, rural, 1998.
CDR	=	Crude Death Rate, Rural 2002
TFR	=	Total Fertility Rate, 1998. Lowest of 1.8 in Kerala
LR	=	Literacy Rate, Persons, 2001.

In a traditional society as ours, characteristic difference between ‘Bhartiya’ and ‘Indians’ has to be realized. People will readily accept technology, mostly blindly, but may not go along with its scientific background or basis. Injection may be accepted, but without understanding of immunization or preventive aspect. Water is demanded but not its safety and prevention of water-borne diseases. It is in this regard, the broad-based approach such as of the primary health care, is of great significance. Empowering people is truly the issue of human resource development. We have failed in meeting the target of Health for All by the year 2000 because of not understanding the concept of primary health care and failure to develop insight into the implications. Intersectoral collaboration and cooperation were neglected; trans-departmental programmes and activities were even not initiated by the Governments. Communication is and has to be a continuous activity. This has never occurred in health education which has unfortunately remained tightly locked in the Health Ministries and Departments. People come in contact with the Health or Medical Institutions only during short periods of illness or promotional activities such as immunization or care of mothers and children. On the other hand a vast majority of school children are available for least eight hours a day and five to six days a week. They are attentive and getting educated and trained for personality development and becoming productive citizen. Health is not taught in any significant extent and manner in the schools. In fact there is retrograde reform of dropping the subject of physiology and Hygiene which was once a compulsory subject in school curriculum.

Despite the necessary ingredients and high potential for effective communication, the process of empowerment of the people has been very tardy and measures inadequate. People are not aware of the purpose behind the constitutional amendment for empowering PRI’s. So far despite communication there has been neither appropriate change in the behaviour of bureaucratic and political systems nor any pressure developed by the grassroots people. In general bureaucratic administrations are reluctant to transfer adequate power and authority to the PRI’s. The process is also not uniform in different States. However, ‘self-

reliance’ is the expression of end point objective. Nation has to continue on this path.

**16. Communication for Behavioural Change** It is universal experience that information, knowledge, training or education per se do not necessarily result in appropriate or expected change in human behaviour. There are several personal, cultural and traditional, situational and circumstantial, and other factors influencing behaviour. Further, behaviour may take different and very diverse forms and may change over time and situation. With this realization, recently IEC strategy has been changed to CBC (Communication for Behavioural change). This makes the objective more explicit. However, our knowledge of behaviour is very incomplete. How do the rumors spread so effectively and people act on the information? The rumors such as God Ganpati’s idol drinking milk or of Hanuman sweating got widely spread not only all over India but also far of in U.S.A. Negative health habits such as use of tobacco and alcoholic drinks are highly contagious, but it is hard to inculcate positive health behaviours such as exercise, regularity and moderation, lifestyle changes, or giving up smoking. How these adversities get communicated so well, easily and rapidly? Why we are not researching? “Tonics” are very popular although none of them have scientific justification. Nevertheless even the qualified doctors and consultants prescribe them. Many doctors do smoke despite the knowledge of the harm; they also consume antibiotics when they themselves get common cold. Failures of communication are plenty. Can we learn more about why and how of the failures?

**17. Faith, Culture, Belief and Traditions:** All these exist because of communication; and are good instances of strong and lasting behaviours. Faith is the trust or unquestioning confidence, strong belief especially religious doctrines, etc. Culture is the state of trained and refined state of understanding and manners and tastes. Belief is trust, confidence or acceptance of received theology or of things as true or existing. Tradition is opinion or belief or custom handed down from one generation to another especially orally, based on usage or experience. These are then the ultimate end points where health education mission should reach and get institutionalized in the society.



There is another interesting aspect of communication. Communicating information and scientific facts to the common people and 'uneducated' is relatively simple and often very effective in hands of some individuals. However, to educate and to inform effectively the 'educated' is a very hard task. We talk of stigma, say in case of leprosy. With full scientific and epidemiological knowledge about leprosy, almost all doctors will not thoroughly examine (may not even touch) a person either suffering from leprosy or suspected of having it. This is true even in the case of the cured leprosy patients. Doctors have dismissed even cured person from employment. There are four types of people: (a) Literate and educated, (b) Literate but un-educated [many professionals fall in this group] (c) Illiterate and uneducated and (d) Illiterate but educated [these are the wise villagers]. It is hard, often impossible, for the category (b) type of persons to learn new things; relatively easy for category (c) people, say in the villages; and category (a) and (d) are the people who learn when properly informed. IT is hard to undo wrong things once learnt and substitute them with the 'right' ones. Repetition is one way in which communication can be reinforced; it is probably an effective eraser of memory.

Some social reformists are concerned about the blind faith many poor people have. The fact that faith provides assurance and relief to many of the unprivileged people is undeniable. Exploitation of the faith the poor have in something for monetary or some selfish motive amounts to cheating; and this should be curbed. However, most of the instances such as offering 'vibhuti', etc., are provided free and without any ulterior motive. On the other hand many educated people and scientists have strong and blind faith in science. Any thing such as a new device or product like drug is accepted without questioning, anything that costs more is considered as superior. Blind faith in science is worse than the faith the poor people have say in 'God'.

By-and-large the blind faith of the poor is harmless. However, the blind faith in science is often harmful to the society. Miracles are not uncommon in medicine. Patients with advanced cancer have not only survived but the cancer indeed regressed completely. There are case studies to confirm the facts and provide unequivocal evidence of faith operating as the causative factor. Most of the miracles cannot be explained by science, but they are real; the fact is that science and its methods are not yet developed adequately. It is noteworthy

that the damage done by blind faith in science and technology, without unequivocal evidence, is plenty. The example of the wide spread use of tonics has been already quoted. Medicines such as the antibiotics and hormones are mostly misused than used. The most damaging is the recent advocacy of the use of condom as a public health measure for the prevention and control of new venereal infectious disease AIDS and HIV infection. Worse is that this is being done with total disregard to the well established cultural, ethical and traditional social base. Apart from the ethical and morality values prevalent in India, this societal issues are best illustrated {especially for those who believe in the Western culture blindly} by the American Adolescent Family Life Act of 1981. This USA Act focuses on developing programme that promotes abstinence as the only option to help young people avoid STDs and teen pregnancies. The authors have reproduced Title V "abstinence until marriage only" standard: "Abstinence education" means and educational or motivational programme which –

- (A) has as its exclusive purpose, teaching the social, psychological, and health gains to be realized by abstaining from sexual activity;
- (B) teaches abstinence from sexual activity outside marriage as the expected standard for all school age children;
- (C) teaches that abstinence from sexual activity is the only certain way to avoid out-of-wedlock pregnancy, sexually transmitted diseases, and other associated health problems;
- (D) teaches that a mutually faithful monogamous relationship in context of marriage is the expected standard of human sex activity;;
- (E) teaches that sexual activity outside of the context of marriage is likely to have harmful psychological and physical effects;
- (F) teaches that bearing children out-of-wedlock is likely to have harmful consequences for the child, the child's parents, and society;
- (G) teaches young people how to reject advances and how alcohol and drug use increases vulnerability to sexual advances; and
- (H) teaches the importance of attaining self-sufficiency before engaging in sexual activity.



Are not these guidelines also truly Indian or for the matter global? It is here that cultural, religious, ethical, moral, psychological, and other subtle aspects of human value system takes over science and technology. These philosophical aspects should be recognized and considered while planning communication strategies.

**18. Developmental Spiral:** The communication cycle is now tending to complete the circuit. The progress, owing to the developmental inputs result in better resources, and when these are ploughed back leads to further development like a spiral. Comprehensive Socio-economic Development with overt benefits, itself acts as a natural communication tool. Thus, development strengthens communication fabric in many ways. The resulting learning progressively builds an enlighten community. Lopsided development such as in tertiary health care sends wrong signals, so also inaccurate information and half-knowledge leading to fear complex (as in the case of HIV / AIDS and Rabies). Behavioural change should be positive and not based purely on perceived danger. Another type of communication is in the form of pressure (against national interest) from the international agencies. In this case the communication is economically weighted and the Health Administration behaves as if purchased, e.g., the Pulse Polio Programme and the Revised Anti-Tuberculosis Control Programme which are epidemiologically unsound and socially not feasible. True behaviour change is reflected in the developmental performance. This is best illustrated by the Human Development Radars as computed by the planning Commission (Diagram I and II). There are hardly any urban-rural differences in Kerala, while the same are very high in Bihar. There is very marked difference between the urban and rural development

**10: Communication, Science and Spirituality:** Modern ways of life and communication technology has produced comforts. Science and technology have, however, promoted materialism, and made life artificial and away from the nature. Ecological disturbance and imbalance is causing mental stress and psychological problems. Therefore, some people have started looking back to the traditional societies and spirituality. Green movement is taking roots in countries such as Germany, France, Italy, UK and USA. The aim is on voluntary simplicity and 'downsizing' of lifestyles. Our lesson should be to hold on to our simplicity. Science and technology should go hand-in-hand with spirituality.

**11 : Ways out:** Health Education is defined as a process of learning that is required to bring about a change in the behaviour and actions, i.e., way of life, of the people so that they can actively participate in the measures for promotion, maintenance or restoration of their health. In practice, our health system has kept this definition lyophilized. What lessons can we draw from the foregoing treatise which indicates some of the probable causes of failures and shortcomings? All the health scientists and managers have to take this exercise. It is imperative that the success stories of the voluntary organizations and voluntary reformers should be studied, understood and insights developed for application at properly selected locations and situation.

If the objective of empowering people and making them self-reliant is for promoting and assisting social actions for health development, there is urgent need to learn more about social action. The process of social action consists of three phases, viz. Preparation, Intervention and Sustenance (figure II – a). The major factors on which social action depends include the following:

1. Nature and magnitude of situation or issue or the problem, place and time.
2. Characteristics of the people, culture, socio-economic conditions, and other attributes.
3. Leadership types, qualities and effectiveness.
4. Motivation, commitment, training and organization.
5. Strategy, policy, resource mobilization and management.
6. Willingness to act, logistic supports, teamwork, etc.
7. Political system and situation.

Preparation generally starts with recognition and definition of problem or issue that needs to be tackled. Other items include organization, resource mobilization, setting objectives and expected outcomes. Intervention is the main process formed by initiation or start, development of critical mass, streamlining, getting strength and momentum, mass movement, monitoring, etc. Sustenance is an important factor and consists of impact evaluation, correction and modification, manpower and resource development, logistics, linkage with other social systems, monitoring and institutionalization. The three phases of social action are elaborated below:



*Preparatory Phase* – It includes recognition and definition of problem or issue or a situation that need t be tackled. Situational analysis is important in this regard. This should lead to motivation and decision to react. Policy and strategies are to be formulated. Objectives are to be set and expected outcome has to be agreed upon. Accordingly people are to be organized and trained, and resources are mobilized. Information, communication and training are the cardinal factors for mobilization and motivation of the people. Plan for action has to be prepared.

*Intervention Phase* – Actions are initiated as prearranged. It may be a big assault with a bang, or gathers momentum and impetus till a critical mass develops. Streamlining and mid-term assessment and corrections may be necessary. Depending on objectives, the actions continue till sufficient strength is acquired. Mass movement may be desired. Continuous review and monitoring are necessary.

Effective leadership is one of the key factors. A vital element of human resource is the local community organizers. Without this element, the target population, our human resource cannot be activated to function. In industries, labour organizations have demonstrated what can be achieved by the organized sector of the society. If the people, the “have-nots”, could be so organized, social action can take place in favour of health and development. The task of health promotion and improving the quality of life will be much easy. The success stories of many individuals and NGOs can be attributed to cultivating & engaging local community organizers. Experiences of some leaders are published in the World Health Forum, volume nine, number two. These are very revealing and useful guides. It is essential to develop a programme for promoting leadership in health.

*Sustenance Phase* – Impact evaluation is important. Corrections and modifications are to be accomplished. The objectives may change and new plans may be necessary. Long term human resource development, further development and mobilization of resources, logistics and linkages with other social systems or communities may be required. Social action may become a part of life, a tradition

or a cultural characteristic. Most critical input in this regard is availability of the community organizers who take initiative, organize people and ensure continued individual and social actions in favour of health development and human welfare.

The process of social change may not, however, follow the above sequence, and the importance or priority that any of the constituents may vary from people to people, situations and time to time. It is also important to note the relationship between the extent and scope of social action vis-à-vis its impact and sustenance. If social action is restricted to a single behaviour, impact will be restricted. But if the social action is directed to multiple or groups of behavior, the effect is likely to be pronounced and lasting. The ultimate goal of any social action/actions should be to bring about a change in the lifestyle that is conducive to health – that promotes positive health behaviour. See figure II – b. Evaluation of education and communication is not easy and there are many pitfalls. Short – term or immediate effects in terms of knowledge and attitudes are measurable. However, the question as to the ultimate impact of this on behaviour remains unanswered. Further, information and knowledge once gained, may be used at any time later during the life, and provided the memory is retrieved at appropriate time and situation.

**10. Summation:** (1) Health education should be taken seriously as its defined. (2) Education is not just teaching and methods; it is learning. (3) Communication is a life process and effective learning related to situations. (4) Behaviour is determined by lesson learnt from experience, knowledge and communication. (5) Self-reliance in health demands focused and sustained activities on the improvement of health attitudes and behaviour in individual, groups, and community as a whole. (6) The interventions and programmes for sustained community involvement, participation and initiative should be broad based and comprehensive with an objective of human resource development. It is the substantial issue of empowerment of the people and organizing them. It cannot be fragmented or compartmentalized for single or narrow purposes. All these are the challenges which need to be taken up rather earnestly and squarely.



Figure I: Elements of Social Action

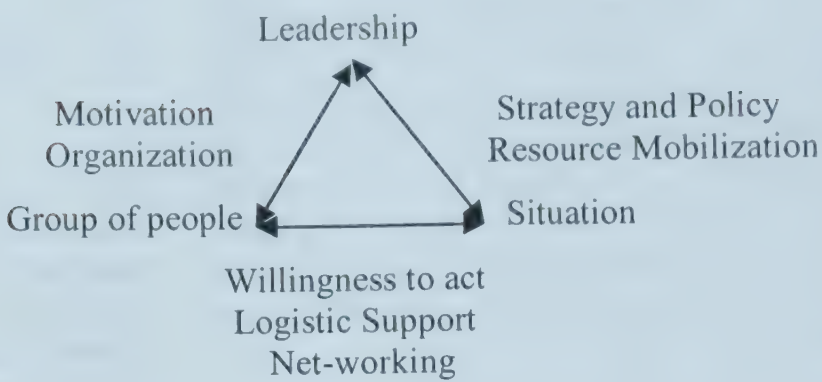


Figure II – a : Process of Social Action

Preparation	Intervention	Sustenance
<ul style="list-style-type: none"><li>Recognition and definition of issue or problem that needs to be tackled</li></ul>	<ul style="list-style-type: none"><li>Initiation and start</li></ul>	<ul style="list-style-type: none"><li>Impact evaluation</li></ul>
<ul style="list-style-type: none"><li>Motivation</li></ul>	<ul style="list-style-type: none"><li>Streamlining</li></ul>	<ul style="list-style-type: none"><li>Corrections and modifications</li></ul>
<ul style="list-style-type: none"><li>Setting objectives and expected outcomes</li></ul>	<ul style="list-style-type: none"><li>Getting strength and Support momentum</li></ul>	<ul style="list-style-type: none"><li>Manpower and Resource development</li></ul>
<ul style="list-style-type: none"><li>Resource mobilization</li></ul>	<ul style="list-style-type: none"><li>Monitoring</li></ul>	<ul style="list-style-type: none"><li>Logistic support</li></ul>
	<ul style="list-style-type: none"><li>Mass movement</li></ul>	<ul style="list-style-type: none"><li>Linkages with other social systems</li></ul>
		<ul style="list-style-type: none"><li>Monitoring</li></ul>
		<ul style="list-style-type: none"><li>Institutionalization</li></ul>

Figure II – a : Process of Social Action

Extent and Scope of Social Action vis-a-vis Impact and Sustenance		
Restricted to single behaviour	Multiple Group of behaviours	Ad hoc and short lived
	Lifestyle/Comprehensive	Meaningful and long lasting
		Integral part of culture and tradition.

Deodhar, N.S., Changing Strategies and Challenges in Communication in Health, Chapter 2.3, Contemporary Public Health, Ed. Gupta, J.P., and Sood, A.K., Apothecaries Foundation, New Delhi, May 2005.



## 5. A Minimum Package for Strengthening Public Health System

When the order is tall, commitment is limited and solutions are overwhelming, it is natural that one has to be very pragmatic and down-to-earth. Therefore, it is best to begin with a packet of minimum essential items and let the public health system geared itself for appropriate actions at various levels, achieve things, gain confidence and commit for community-based health development programme as an integral part of socio-economic development. A packet containing feasible moves suitable for India is as follows –

**1. Restructuring Organizational Set-up:** Since independence, growth and development of the Health Ministries and Departments have taken place on *ad hoc* basis. In light of the vastly changed circumstances and the new national health policy, this out-dated set-up needs changes so as to ensure efficient management of health system.

- Strengthening of *Panchayat Raj System* and the *Institutions* and to empower them in all possible ways so that they are able to take total responsibility for health and community development through primary health care approach; and make the local communities self-reliant in day-to-day health care including treatment of minor ailments and injuries.
- Integrate Health Ministries and Departments at the Central and State levels, and establishes a single Ministry/Department of Public Health. Public health and medical issues should not be confused and mixed. Define new roles & functions; and appropriately restructure, reorganize, modernize and keep the set-up trim for efficiency. The main roles are (a) to empower and support *PRIs* and ensure effective health development through primary health care approach, and (b) to provide necessary secondary & tertiary health care services, especially to the poor and underprivileged.
- Providing for appropriate and balanced health manpower development through establishment and net-working of educational and training institutions. It is essential to ensure sound foundation for services personnel at all levels. Apart from high academic standard, ability to perform, quality of services rendered, and concern with common and poor people should become indispensable.

**2. Establishment of New Cadre of Indian Health Service (HIS) on par with that of IAS:** Major problems in the effective and satisfactory delivery of health care are lack of unblemished leadership and poor administration and management. A simple

and quick way to ensure development of a strong and efficient public health system is to hand over the managerial responsibility and authority to a team of competent and knowledgeable persons with good track records. However with paucity of good managers and experts in public health, this is not possible. Clinical practice of medicine is too lucrative to attract medical talent for managerial posts for want of career development. Public health cadre needs to be strengthened by creating career structures, and establish policies to mandate competent background and relevant expertise for persons responsible for health of the population. Therefore, the need for HIS cadre is urgent and will go a long way in rejuvenating the public health system.

**3. Amending ways of Administration & Management:** Quality leadership is essential for progress and development. Clinical specialists without formal degree in public health, and bureaucrats do not have real cognizance of public health problems. It is desirable that the Secretary, Director and other persons appointed as top, middle and district level health managers are duly qualified in public health and carry good record of performance & leadership. It is essential to shift emphasis from 'medical care' (secondary and tertiary *health* care) to 'health care' (basic public health service). Population problem can be solved and gains sustained if the basic exigencies of the poor for better living are satisfied.

**4. Adequate and Balanced Health Manpower Development:** The main reason for the poor reputation and bad quality of governmental health services is poorly motivated, improperly trained and supervised staff. At the apex level, (a) it is desirable to strengthen judiciously selected scientific and technical public health institutions such as the All India Institute of Hygiene & Public Health, Calcutta, by upgrading them to a level of Schools of Public Health, Centre for Diseases Control and Prevention, etc., in USA and developed countries in North America and Europe, and (b) establish a chain of Schools of Public Health with one school in each of the major States. Functioning of Universities of Health Sciences needs rationalization and its scope should be extended to encompass the entire health manpower development up to the grass-roots. Medical colleges have failed to produce a general practitioner, a backbone of general health service; and pay no attention to practice preventive medicine. Attempts to restructure medical education during the last three



decades have failed. Medical Council of India is incapable to do this task.

**5. Build Health Systems Research (HSR) as an Integrated Component of Health Management and Administration:** This is needed for effective application of available knowledge and technology for health development. In India, much of the available knowledge and technology has not been used for health development and to improve the quality of life. Thus, use of health systems research becomes imperative in this regard; it is like R&D of any successful industry. When incorporated as a component of regular health services administration, HSR is much cheaper than laboratory or institution-based research. Poverty should be tackled in innovative ways for upliftment of the poor who should be enabled to pay for their all basic family-life needs, within about five years, covering all below the poverty-line.

**6. Initiate Massive Drive for IEC for Comprehensive Health Development with an Objective of Making People, Especially the Have-nots, self-reliant in Health and Related Matters:** No developmental programmes can ever succeed without active participation and initiative on the part of the people for whom it is meant. Adequate and proper information is the best tool and drive for encouraging social actions for improving the quality of life and health development. A lot has been said about community involvement and participation, nevertheless we have failed to truly meet the people. Time is ripe to change the strategy and opt for participating in the programmes initiated or proposed by the people directly or through *PRIs*.

**7. Strengthening Panchayat Raj Institutions by way of Total Decentralization of Primary Health Care (in phases) in a time-bound Process, Devolution of Powers and Authority:** Community initiatives and social actions should be promoted by encouraging and organizing autonomous groups of people sharing common interests, e.g., Self-Help Groups, in improving their health status by trying out within their own resources. Such groups should have power to take major decisions for local activities and full control over local health functionaries. Empowerment of the people is vital in this regard. The focus has to be on organizing and activating *Gramsabhas* and urban neighbourhoods. This is the only way by which the staggering regional and inter- and intra-state

diversities and disparities could be effectively addressed.

**8. Develop and Strengthen General Health Services:** Coordinate with Medical Department and Medical Colleges so that the practicing doctors who belong to various systems of medicine, both in private practice and in public service, treat and manage patients of all kinds so that the Public Health Programmes are no longer required to include treatment of disease as a part of disease control. In the developed world, general or basic health services are so strong and adequate that patients of communicable diseases such as tuberculosis, malaria, etc., are treated by all doctors and at all times. It is not pushed on to the public health. Special efforts are required to ensure that our [poorly developed general health services are substantially improved. Provision has to be made to ensure care of the real poor families. Ayurveda and Yoga aim at quality of life and longevity. It is essential that advantage of various systems of health care should be involved in development of the general health services system.

**9. Constitute a Team of Consultants & Advisors consisting of Renowned Public Health Experts, Epidemiologists and Executive Managers to (a) Advise Governments & Local Bodies on Health Policy, Programmes & Research, (b) Determine Priorities and Activities, (c) Review and Assess Public Health Service Programmes, (d) Promote Intersectoral Activities:** It is high time to recognize that with astonishing and rapid growth of scientific knowledge and technology, no single expert or specialist can ever provide consultation or administer health department as an integral part of socio-economic development. Secondly, such expertise exists often outside the Government Services Personnel. It is desirable for the Governments to gain from non-government expertise through high power consultation committees, members of which should be scrupulously selected (not those who would just rubber-stamp).

**10. Initiate Inter-sectoral Dialogue and Programmes for Promotion of Environmental Health, making Lifestyles Conducive to Health, Welfare of Women and Children, Care of the Disabled and Handicapped, Nutrition Security, Urban Health and Slum Improvement, Human Settlements and Housing, Industrial and Occupational Safety, Sports and Leisure-time Activities, Poverty Alleviation, Equity, etc.:** It is essential to recognize that the root cause of illness



and pitiable quality of life is poverty. This list of areas of development is the most vital activity for promoting health development because this will adequately deal with the basic determinants of health, which we are neglecting today. This activity can best be done under the Prime Minister by

establishing a central authority like 'Health Development Mission' with similar set-up at the State/UT level under the Chief Minister. Health reforms should focus on primary health care, poverty alleviation, equity and social justice.

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Note for Independent Commission on Health in India, Presentation to Union Health Minister, 10<sup>th</sup> January 2004, New Delhi.

Members of Independent Commission on Health presented the above agenda to Shri Shtrughan Sinha, Union Minister of Health and Family Welfare, GoI, in his chamber on Friday, 17<sup>th</sup> January 2003, when the Secretaries in the Ministry were also present. Below is the extract from the follow-up letter sent to the Union Health Minister by me on a specific plan of action:

### Proposals:

**1. Consultative Committee:** Basic reason for not attaining the targets set under National Health Policy, 1983, was failure to follow the primary health care approach and not realizing its implications. Currently, we have the new national health policy, 10<sup>th</sup> Five-Year-Plan has been approved by the NDC, and reports such as of the Independent Commission on Health in India are available. It is desirable to constitute high-power consultative committee of 8 to 10 non-official experts to draw a plan of action – say 10 to 15 point programme for successful implementation of the 10<sup>th</sup> Plan taking into consideration the new health policy, unfinished agenda, the complex reasons leading to unsatisfactory performance during the 9<sup>th</sup> Plan, etc. In this endeavour, the Central Government has to play a role of a facilitator and supporter. It is necessary to be proactive and encourage the State Governments to take initiative and play active role in the delivery of health care services effectively. This has to be done through the Panchayati Raj Institutions by way of adequate decentralization, empowerment and technical support in the full spirit of the 73<sup>rd</sup> and 74<sup>th</sup> amendments of the Constitution.

**2. Communicable Disease Control:** Recently, Voluntary Health Association of India has published a comprehensive and self-contained monograph on this topic which includes far-reaching and integrated plan of action to deal with this long standing problem that concerns us most. This task can also be assigned to the propose Consultative Committee.

**3. Health Mission:** The Mission is of placing people's health in their own hands, strengthening public health system, and supporting the people and *Panchayati Raj Institutions*. The task is challenging, but attainable if we are committed, sincere and willing to change and act effectively and efficiently. We shall have to work with the people, listen to them and learn from them. What is needed is formulation of a comprehensive management development plan. Independent Commission on Health in India offers its experience to the Government of India and the State Governments as to how to start, plan and implement.

**5. Some Strategies:** (i) placing people's health in their own hands, (ii) restructuring the organizational set-up at the Central and State levels, (iii) training of public health specialists and managers, (iv) new cadre of national health service, (v) strengthening management system, (vi) health services research, (vii) thrust on *information, education, and communication* (IEC), (viii) environmental health, (ix) shift emphasis from 'medical cure' to 'health care', (x) improve the lot of the poor, 'have-nots; and women, and (xi) ensure competent leadership.

### Background Information

Below are the data and information base on which these proposals have emerged:

**1. Setting Priorities:** Priorities should be evidence-based with a focus on common people and based on scientific criteria. Universally accepted criteria are as follows: (a) extent of mortality and morbidity, (b) degree of adverse impact on economic and social consequences, (c) availability of efficacious, efficient, & feasible preventive & control measures. This procedure is not followed at present. The best illustration of the wrong is the case of HIV/AIDS where the priority is determined by the agenda of the funding agency, while none of the criteria mentioned above are satisfied.



**2. Health Care VS Medical Care:** Most of the officials and others in the Health and other Ministries and Departments talk about health. Unfortunately, however, very little is being done for health promotion or disease prevention; most of the programmes are directed for medical care. Relief to the ill person is necessary, but nation

cannot afford to neglect epidemiology and public health. We cannot blindly follow the West because they have already provided for all the basic health needs and the major health problem is sickness. This is not true of us. Our people are without basic health needs, as shown below, item-wise:

*Public Health System in India v/s those in Europe and North America*

Primary Elements	India	Developed Countries
Safe water supply	Poor	Assured to all
Excreta-safe disposal	Poor	Excellent
Control of vectors	Very poor	Very good
Solid waste disposal	Very poor	Very good
Healthy housing	Some have, Many in slums	Most families have it
Sanitation and hygiene -		
Personal	Poor	Good
Food	Very poor	Very good
Public places	Very poor	Very good
Pollution –		
Air	Rampant	In good control
Water	Universal	Rare
Soil	Universal	Rare
Noise	Very common	Uncommon
Nutrition	Undernourishment	Obesity is usual
Basic education	Low literacy	High literacy
Occupational safety	Poor	High
Gainful employment	High unemployment	Employment usual
Social security for poor	Very limited, if any	Adequately high
Control of diseases –		
Communicable	Diseases are rampant	Diseases are rare
Non-communicable	Less, but on increase	High burden
Residual problems	Entire agenda unfinished	Medical care for the ill

**Lessons:** We in India cannot go by the priorities of the developed world. We shall have to improve environmental health. We shall have to launch ‘operation public health’. We shall have to establish strong general health services.

**3. Foreign ‘grants’ and ‘soft loans’, and International Agenda:** Some comments –

- Lack of transparency surrounds such international funds and operations through so-called ‘District Societies’, etc.
- Determine priorities on the basis of agenda and objectives of the funding agencies. These are often in contradiction to the national priorities, strategies, etc.
- Interested in a single health problem/disease, fully disregarding the need for comprehensive and integrated health development.

- Push and insist on development of vertical programmes for disease control, an obvious contradiction to the national health policy and resulting in further deterioration of already moribund public health system and general health services.
  - Associated structural reforms and economic adjustments have resulted in reduction of the capital expenditures such as staff salaries, etc. Thus, there are meager funds left for operations and services.
- Lessons:** (a) We have to go by our own evidence-based priorities and strategies, and not those set by the foreign agencies. (b) “Health For All” through primary health care approach is still valid for India in the 21<sup>st</sup> Century. We shall have to focus on all nine elements of primary health care and place people’s health in their own hands. (c) We shall have to effect health development as an integral part of total socioeconomic development. Inter-sectoral cooperation is essential. (d) People and



Panchayati Raj Institutions should be empowered and strengthened adequately so that they are able to provide primary health care services to all, the basic target being the have-nots, disabled and the underprivileged.

**4. Need and Urgency to Change:** In light of these realities, where should we go? Our emphasis on ‘medical care’ should be discarded in favour of ‘health care’. We should provide basic health needs of the millions of common people and the poor, in preference to the modern sophisticated specialist and super-specialist care to the few who can avail these in private sector. Year 2000 has passed, but the unfinished agenda of the last Century has remained unfulfilled. We shall have to launch ‘operation public health’.

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Informally, I used to tell that if I were to take action, I would: (a) Next Director General of Health Services, Ministry H&FW, GoI - Select the incumbent now and send him/her on deputation under special Fellowship abroad for training in epidemiology and public health management for a period of one year. On similar line, about 30 more Fellowships of one year duration are provided and each of the State/UT required taking action urgently for selection of Director of Public Health in advance and getting him/her trained in

epidemiology and public health management/administration abroad. This single step will help in ensuring necessary leadership and better performance.

(b) Nominate a five member Consultative Committee of experts in epidemiology, public health administration, and management. The experts should be selected among non-officials on the basis of their achievements and contribution and not because of holding high position in the Government or otherwise. State Governments may be encouraged to do the same.

(c) Initiate actions on establishment of National/Indian Health Service on par with IAS. This new cadre will cover all the positions of the rank of District Health Officers and above.

(d) Initiate actions for reorganization of the administrative set-up for improved efficiency at the Central level and activate States to shoulder their constitutional responsibility of providing public health services to their people.

(e) Shift emphasis from ‘medical care. To ‘health care’. Start by improving the lot of the poor, have-nots and women.

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**PART L**

**Health Policy and Planning**







# 1. Comments on the National Plan of Action on Children (2003-2015)

These comments were in response to the request from Shri Alok Mukhopadhyay, Executive Director, Voluntary Health Association of India, New Delhi in May 2003.

(1) Poliomyelitis cannot be eradicated by 2005 only through immunization, unless efficient epidemiological surveillance, investigations and corrective measures, and environmental health components are added. I am at lost as to know how the cases of poliomyelitis are made non-infectious! Please let me know the proposed method of attaining this feat. I can then comment. (+)

(2) Infectious Hepatitis: Adding hepatitis vaccine to other vaccines in the national immunization programme is likely to result in further deterioration of regular immunization coverage. Pulse polio campaign has already brought about significant drop in the coverage. This effect will be aggravated. There is also unanswered question of cost-effectiveness of this addition.

(3) Environmental Health: Targets set for this item have never been met in India and will never be met. There is no alternative to involve and empower people, *Panchayati Raj Institutions*; and decentralize, and assist them technologically and financially. Even today, water in Delhi is not safe. Less we talk the better. So long as we give highest priority to medical and hospital care, and neglect public health except during a big epidemic affecting economically better people, things will not improve.

(4) Child mortality is targeted to be reduced by 50%. What are the presumptions made while contemplating this? Without this information, validity of fixing target cannot be ascertained.

(5) HIV/AIDS: Achieving zero level of growth of these is impossible, if by zero level of growth means incidence. We shall have to live with this infection for ever, i.e., as long as man remains polygamous. Only choice is at what level, and only way to keep, it at lowest level is to ensure that promiscuity is lowered to the minimum possible. Family institution should be strengthened and family life made happier by mutual accommodation, etc. Measures such as condom

promotion and high-risk approach will not give results. The target shall have to be entire community, comprehensive and culture-based. Epidemiologically this zero target is absurd.

(6) ARIs control demand high degree of community participation, and management at the grass-roots. Unless the services are decentralized, PRIs are empowered, IEC becomes effective, this will only add to our list of failed programmes.

(7) Malaria: All that is mentioned about malaria control is being said for last 50 years and malaria remains stand fast. Unless our public health system is strengthened, malaria, tuberculosis, STDs, etc., will continue to have upper hand over man. Malaria should get treated when a person goes to any doctor or quack. Most of the people do this for all illnesses. The only lasting solution is to strengthen general health services and these are almost non-existent in India.

(8) Maternal Mortality: The targets set to reduce MMR are unattainable with morbid public health system that exists. The strategies suggested are bookish and not feasible. We have not been able to estimate MMR corrected even after half century of MCH services. Nothing will happen by just renaming the programme as RCH. Solution is as for malaria.

(9) Nutrition can improve only on improving the purchasing power and making PDS to exclusively serve families below poverty line, meaningful and efficient. Nutrition cannot be improved by mere education and slogans. Equity and honesty are essential.

(10) Institutional Deliveries are talked about. However, during the last 22 years, status and functioning of health infrastructure in the rural areas has deteriorated substantially.

(11) Care of Disabled is highly demanding task. Disablement is due to several causes and requires specific preventive and rehabilitative interventions. Trained manpower, high cost and time duration are essential. Without information on action plan or programme, the list of intensions will lead no where.



(12) Education of Children: My comment to this item is valid for the entire document. There is hardly anything new in this and there are only intensions. Most of the strategies are old and have failed to give us satisfactory results, not because they are wrong, but because of poor management and uniform approach. If we wish results, the first step is to decide what is to be desired. Next it is essential to do situation analysis of the current status and the possible local (at least at district level) reasons therefore, this will provide base-line data and information needed for area and community specific planning and programming. When action plan is locally prepared with involvement of the people, local leaders and experts, necessary resources should be made available taking care of the logistical and management issues. Above all, efficient management is vital to make the programmes cost-effective and satisfying to the people. Our ways and culture are different than this rational approach. Generating paper tigers will serve no purpose by itself.

(13) Literacy Rate: The above is also relevant for improving literacy rate. What are the strategies? (a) Enable women to actively assist and monitor educational activities in villages, including the primary school, alternate education, Non-formal Education Centres and facilities for continuing education. (b) Provide women and adolescent girls with necessary support structure & informal learning environment to create opportunities. (c) Secure wide involvement of NGOs in National Literacy Mission. Fine, but how to ensure that this actually happens; all places and people are covered and sustained?

(14) Reduction in Gender Gaps in literacy by at least 50 % by 2007. This and such social issues will have no readymade solutions. Have we even tested possible alternatives/interventions in different locations and communities? This is area which demands systems research in social actions. Unless we are willing to take this scientific approach for solving difficult situations, we will have plans and *status co*.

(15) In general, all proposed measures are directed for correction or relief, etc. Preventive and promotive measures are conspicuous by absence. It is not realized that what is claimed to be treated or corrected is the overt disease, but the multiple factors causing ailment are left undisturbed. It is all too easy to overlook the fact that the victim and his/her family and neighbours have lived and will continue to live with the roots of the problem. It is essential to deal with the primary determinants. When we talk about enforcing laws, and improving the implementation of policies and programmes, the tragedy is the fact that we neither enforce our laws nor we are in habit of implementing policy, plan or programme to a desired point. Very often we get lost in the means, forgetting the final aim.

Talking about difficult situations, we have to have priorities set up first. When we are not able to deal with ordinary things for want of will, commitment and management, we have to be specially concerned and efficient in difficult situations. Generally we wail till crisis develops, than act on *ad hoc* basis, and forget about it until next crisis appears.

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Communication to Shri Alok Mukhopadhyay, Executive Director, Voluntary Health Association of India, New Delhi in May 2003.

(+) Further comments on poliomyelitis are given under Part A, Communicable Diseases, 5 – Comments on the National Plan of Action on Children, polio component (2003-2015).



## 2. On National Health Policy

Health is vital to every person, especially when it is lost. Naturally, every culture and every society has some policy or way of looking after health. In every society, most of things happen and development takes place usually without any formal policy, plan or programme. In India, *Ayurveda* - the science of prolonging life - is a good indicator of health policy in ancient days. The emphasis was on health promotion and prevention of disease. The prescription included advocacy for regulating healthy life-style, diet, yoga, behaviour, etc. The concept of primary health care for all existed even then and it is beautifully expressed in a *Sanskrit* verse, "*Sarve santu niramayaha*" which literally means "let all be healthy". As early as 3000 BC, the Indus Valley civilization had developed environmental sanitation such as provision of underground drains, public baths, etc. Unfortunately, for unknown reasons, this great era was lost to a dark age.

During the middle of the eighteenth century, the alien British government in India established medical services essentially for the benefit of the British nationals, the armed forces, and privileged civil servants. The *Ayurveda*, Unani and other local health care facilities were totally neglected. In due course, the upper classes in the urban areas got used to the hospital services. This resulted in a strong Western bias leading to the blind faith in sophisticated "modern medicine" for a few, rather than basic health care for all. This bias continues to pose a problem in formulation of the national health policy.

Development of health is a holistic process related to the overall growth and development of social, cultural, economic, educational, political and environmental factors. Health also depends on many supportive services, such as water supply, sanitation, nutrition, public health and medical services, and human resources. Health policies are, directly and/or indirectly influenced by the policies concerned in these areas. For instance, development policies to eliminate poverty, inequality and social injustice are directly linked to the Health Policy, Population Policy, Education Policy and other Social Development Policies.

Health services comprise of medical care and public health services, and are a function of the political system of a community. Political forces and ideologies play a major role in determining the

health policies of the country through decisions on resource allocation, manpower policy, choice of technology and the degree to which health services are made available & accessible to the population. Health policies can also be used as a political lever to promote certain vested market interests.

The maiden attempt for formulating health policy in India was made by the National Planning Committee of the Indian National Congress in the thirties. On the eve of Independence, the Health Survey and Development Committee, popularly known as the Bhore Committee, had prepared its classic report which provided an almost revolutionary alternative and furnished a blueprint for a new approach to the health services in India. The Health Policy of Independent India, as perceived by the First Health Minister's Conference in 1948, was based on the recommendations of the Bhore Committee.

Historical factors have influenced health policies in India to a great extent, Colonial policies which were followed in India even after Independence, served the interests of the elite and urbanized classes, resulting in the increased commercialization of medical establishments and the rapid expansion of the drug industry, besides greater specialization and super-specialization in curative medicine. Public health practice was ignored and this resulted in the virtual disappearance of public health specialists.

The Constitution of India, adopted in January 1950, visualizes the creation of a new social order based on equality, freedom, justice and the dignity of the individual and, to that end, need to eliminate poverty, ignorance and ill-health. In the federal system of India, provision of health is the responsibility of the State governments.

Planning Commission was set up in 1950 for socio-economic development. Implementation of health programme was initiated in the successive five-year-plans. Integrated curative and preventive health care services were to be provided through the primary health centre complexes formed one of the components of comprehensive Community Development Programme in rural India.

Curative and preventive services were integrated. Prevention and control of epidemic diseases such as smallpox, cholera and malaria were given high priority. Extensive health services



infrastructure was created in the rural areas. India was the first country in the world to adopt family planning as a national programme in 1952. Achievements and failures were periodically evaluated and reviewed by subsequent committees. With the advent of planning, the quality of health care as recommended by the Bhole Committee was modified by the Planning Commission. New programmes were introduced and/or the old programmes were changed or modified. Notable changes were expanding family planning programme to family welfare programme, introduction of the Multipurpose Health Workers' & Community Health Workers' Schemes, and converting MCH (maternal and child health) programme into the reproductive and child health programme.

However, there was no formal policy statement at all on even the significant dimensions of the health policy, both at the central and State levels. One has to infer them indirectly through other evidence. Then came the famous Alma Ata Declaration of September 1978 and followed by the Asian Health Charter. India is a signatory to these documents. As a consequence of this and the recommendations of the ICMR-ICSSR Joint Panel on Health For All, An Alternative, the government decided to have a formal Health Policy. The National Health Policy Statement of 1983 was passed by the Parliament.

The 1983 National Health Policy positively reflected the Nation's commitment to provide Health For All by the year 2000 through primary health care approach. It stressed the need to link health services with other health related activities such as nutrition, environmental sanitation including supply of safe drinking water, community participation, education, social welfare, etc. Other important features of the health policy statement included : decentralization, empowerment of the people for self-reliance in health, intersectoral coordination, involvement of voluntary health organizations and private sector, comprehensive health services, health manpower development, etc. Vertical disease control programmes were to be merged into the general health services. Urban health was given greater priority. Unfortunately, except for the death rate, various targets set to be achieved by 2000 AD, will not be met. The goals have not been fulfilled.

Since 1983, health scenario in the country has changed significantly. While the broad counters of the 1983 policy still hold good, with the passage of time, new concerns have emerged requiring more

focused attention. Socio-economic conditions have improved significantly. People are enlightened better and their expectations have increased. Cities and industries are growing fast. Environment is getting degraded. Growth of population is yet to be checked satisfactorily. Communicable diseases are yet to be controlled satisfactorily. With the increase in expectation of life and changes in the lifestyle, there is increase in the incidence of non-communicable diseases such as cardio-vascular ailments, cancer and diabetes. Thus, there is double burden of diseases, both of poverty and affluence. Interstate variations and disparities are high and is our major concern. Many critics felt that the action taken was not adequate to meeting the basic goal of HFA, and were not relevant to the actual needs and priorities of the community. They pressed for revision of the health policy.

In view of all this, National Health Policy is under review. A draft Health Policy 1999 has been prepared by the Ministry of Health and Family welfare. This is being examined and debated. The process of finalizing of the policy statement has entered in its final stage.

What is on the anvil? Health Policy is the expression of what a health care system should be, so that it can meet the health care needs of the people. Primary health care is reemphasized. Major revamping of the health delivery system is necessary. Public health system has to be renovated and strengthened substantially. People's health has to be placed in their own hands. The 73rd and 74th Constitutional Amendment Acts of 1992, have provided significant opportunities and framework for the active involvement of the people through local self-governments, i.e., Panchayati Raj and Nagar Palikas in all development programmes including those for Public Health and Sanitation. Process of democratic decentralization and devolution of authority with resources has to be accelerated. With the transfer of information and skill, people and their representatives are to be empowered to take over the new responsibilities of local governance. Notwithstanding all this, in the long run, it will be the lifestyle of the people that will play a major role in health development and improving the quality of life. Last but not the least, adverse impact of economic liberalization, privatization and gross distortion of priorities in health development and disease control, caused owing to the external funding, are the other issues to be resolved. It is also long time that the State Governments should formulate their own specific health policy.



National Population Policy 2000 has been adopted by the Government of India. Immediate objective is to address the unmet needs for contraception, health care infrastructure, and health personnel, and to provide integrated service delivery to basic reproductive and child health care. The medium-term objective is to bring the Total Fertility Rate to replacement levels by 2010, through vigorous implementation of the inter-sectoral operational strategies. The long-term objective is to achieve a stable population by 2045, at a level consistent with the requirements of sustainable economic growth, social development, and environmental protection. Strategies include decentralized planning and programme implementation, convergence of service delivery at village level, empowering women for improved health and nutrition, diverse health care providers, collaboration with NGOs and private sector, and IEC (Information, Education and Communication) drive to keep people informed and respond properly. The new policy gives equal emphasis to contraceptives and broader measures to reduce fertility. National Commission on Population has been constituted to overview, monitor and direct effective implementation of the National Population

Policy. The first meeting of the Commission is scheduled on this Saturday, 22<sup>nd</sup> July 2000. This new policy is complimentary to health policy.

This is in brief about our health policy in India. Policy is only a first step for planning and programming. Issue is what next ? One often forgets that policy is like a recipe for preparing foodstuffs. It is a wholesome package of interrelated and interdependent components. It has to be, therefore, implemented as a whole and not in a fragmented manner. Otherwise, very objectives of planning may not be served. One of the past failures was not pursuing the stated policy scrupulously. There are always vested interests, e.g., commercial and political. However, health policy should be essentially people orientated. It is necessary for the people, pressure groups, activists, press and media to be vigilant, and ensure that once accepted, the policy is adhered to and followed faithfully.

I thank you for patient hearing and welcome questions and clarification.

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Talk at School of Health Sciences, University of Pune, 17-7-2000, 8=30 am



### 3. Consultation, Planning Commission, New Delhi

Chairman Sir & distinguished fellow participants in this consultation. At the outset I express my gratitude for the opportunity given to me to share my thoughts and feelings with you all. I will be brief and deliberate on the social sector aspects of the consultancy note circulated to us.

1. To achieve a GDP growth rate of 9 per cent during the 10th Plan period, will be a big challenge in view of performance of about 6.2 per cent during the 9th Plan so far.

2. As outlined in the consultation note, the items under the social sectors to consider include: (a) measures to improve cost-benefits and cost-effectiveness of the current expenditures, (b) blocking leakages and removing weaknesses in delivery system, (c) ensuring essential operation and maintenance costs, (d) enhancing / introducing user charges, and (e) lowering the rate of population growth. This note endeavors to cover these points.

3. The basic determinants of productivity are: (a) Efficacious and feasible projects and programmes which are relevant vis-à-vis developmental aims and objectives. (b) Availability of the required materials of necessary quality and quantity, backed-up with good logistic support. (c) Manpower in required number, training and qualification, technical efficiency and managerial skill. and (d) Adequate and timely finance. In the task of enhancing the GDP growth rate, these basic determinants need due attention.

4. Effective and efficient utilization of the available funds: This can be best achieved by ensuring *cost-benefits and cost-effectiveness* of the current items of expenditures: It is essential to review quickly all the health sector expenditures on infrastructure, services, programmes, projects, research, etc., and examine their relevance, effectiveness, benefits and impact. This will provide valuable information which will help to weed out ineffective and inappropriate programmes, and design measures to improve impact and effectiveness. Hard and unpleasant decisions will be imperative, if we mean real business. We have not met any of the goals which were set for Health For All by 2000, except that for the death rate. Regional imbalances in health care delivery and impact are enormous. Over-bureaucratization, poor management, and weak technical leadership are the major reasons of poor

performance of the health sector. Weaknesses include poor supportive supervision and logistic support, ineffective monitoring, and lack of quality assurance. At this first meeting I will not go into details. Perhaps, the health sector functioning needs a separate deliberation.

5. Full utilization of the Plan Allocation: A common complaint is that budgetary provisions are inadequate. However, in practice, available funds are not used fully or judiciously. In the past, as much as 1/3 of the plan outlays remained unused in the social sector. It is essential to seek for the reasons for non-utilization of funds and institute corrective measures. Monitoring of the programmes is not effective. It fails to ensure the required quantity so as to meet the targets, quality of performance needed for desired impact, cost-benefit, and cost-effectiveness. Social action is essential for development and productivity in all social sector schemes. Therefore, it is imperative to take steps to promote social action, to encourage local leadership and to ensure active participation of the community.

6. Strengthening Public Health System: With rapid expansion of health infrastructure and overemphasis on contraceptive measures in the Family Welfare Programme, public health system in India has become moribund and ineffective. Because of poor management and leadership, there exist preventable leakages. Emphasis on any of the priority programmes adversely affects the performance of all other programmes. Thus, family planning weakened the entire public health services including maternal and child health programme. Pulse polio drive has resulted in lowering the coverage of the universal immunization programme. Development of a strong public health system is essential for developing healthy manpower – the best resource for socio-economic development. This issue was deliberated in the WHO Regional Conference on Public Health in South-East Asia in the 21st Century, held in Calcutta in November 1999. "Calcutta Declaration on Public Health" provides necessary strategies and directions for enhancing health development. As a follow-up action, some of the major Health Associations in India have passed "Agra Resolution" which recommends actions needed on the part of the Central and State Governments. Use of the Report of the Independent Commission on Health in India will be invaluable in this regard.



Flexibility is important in light of the diverse situations and regional imbalances in the country. Because of these explicit guidelines, there is no need to elaborate.

7. Setting priorities: Unless the priorities are distinct and unequivocal, essential operation and maintenance costs cannot be ensured. The well known criteria for setting priorities in health services are: (a) Extent of mortality and morbidity of the disease or ailment, (b) Extent of economic or social loss, and (c) Feasibility and efficacy of the corrective and preventive measures against the disease or ailment in question. Enormous funds are being spent on HIV and AIDS when our real problems such as tuberculosis, high child mortality, etc., starve for funds. When crores are spent to buy sophisticated equipment, the instruments remain out-of-order for want of preventive maintenance or just a fuse for replacement. In light of this, it is essential to review quickly all the health sector infrastructure, services, programmes and projects, education and training, research, etc., and critically examine them for setting priorities.

8. Increasing revenue income: "Free for all" policy is not rational. In India ambulatory and hospital services provided by the Government are free. Since most of the people who avail the governmental medical care are able to pay reasonable fees, expenditures on free drugs, surgery, hospital bed, diet to the patients, etc., amounts to major leakages or 100 per cent subsidy. It is only the matter of pragmatic and down-to-earth policy to introduce user charges for all curative services, except for the families below poverty-line or those holding red ration card. Some hospitals do charge fees for diagnostic and laboratory services, but the rates are ridiculously low as compared with the charges in private hospitals. There is considerable scope to enhance the current fee structure. Under the national programmes there is a lot of wasteful expenditure. Some vivid examples include CGHS insurance scheme, free immunization to all children irrespective of financial status of the parents, etc. Such programmes should be examined for privatization, retaining the current facilities only for the families below poverty-line.

This proposition is true and applicable for treatment of communicable diseases such as tuberculosis, malaria, cholera; contraceptive services, etc.

9. Reducing unproductive revenue expenditure: This is another area where hard decisions should be mandatory. National attempts to introduce zero budget system have failed. Over-staffing is the bane and plague affecting Governments. While Governments approved the enhanced pay scales as recommended by the last Pay Commission, its vital recommendation to drastically curtail the staff was rejected. Most of the medical colleges are deficient in teaching staff, yet the Medical Council insists on full-time faculty. In the past, distinguished private medical consultants were appointed as honorary teachers and did excellent job. However, with appointment of the unsuitable and undeserving persons, under political pressure, as honorary teachers, the honorary system went into disrepute. The solution is to improve management and the control of non-operative expenditures.

10. Lowering rate of population growth: Despite huge infrastructure & expenditure over couple of decades, performance of National Family Welfare Programme is not satisfactory. The National Commission on Population and the Population Policy are still on the old bitten-track. Only significant change is to concentrate on BIMARU States & Orissa. I have suggested an alternative strategy in my paper "Population Growth – Fertility, Health and Poverty". I urge this Consultation and NCP to deliberate on this.

11. In conclusion, without hard and bold decisions, the goal of raising the GDP growth rate to 9 per cent is not feasible. In health sector, simple way to boost productivity and tackle other problems, is to restructure its organizational set-up & hand over managerial responsibility and full authority to a team of competent and knowledgeable experts with good track record. The Directors and others appointed as top level managers should be qualified in public health and carry a good record of performance and leadership. This is the key, but are we willing to use it?

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Note for Consultation Meeting, Planning Commission, held on 1-2-2001, New Delhi



## 4. Suggestions, Steering Committee, 10<sup>th</sup> Five-Year-Plan

These suggestions are significant, although at times they defer from the Reports of the Working Group Report. The 9th Five-Year-Plan contained several important interventions and programmes. The problem was of non-performance and even of non-acceptance by Central & State Governments. Desired impact will never be possible with apathy and half-hearted activities. It is essential that plan funds should be conditional, either on performance and/or fulfilling the stipulated prerequisites. To illustrate, funds should not be provided for epidemiology unless State appoints a qualified Epidemiologist as Joint Director; or no funds for ANM unless corresponding post of Male Health Worker is in position. We may wait for approval of new policy before we link this to the 10<sup>th</sup> Plan.

1. Draft National Health Policy is full of problems and needs drastic revision. In absence of the rationale, validity and feasibility of the set targets cannot be examined. ICHI has already given its suggestions for redrafting the National Health Policy. Public health specialists cannot be trained by reserving 25 % of the post-graduate seats in the medical colleges. Medical college is not a place to train these specialists. PSM is NOT public health. Need is to strengthen AIIH&PH, Kolkata and establish 4 to 6 new Schools of Public Health. The problem will be of providing competent faculty. Special Fellowship programme to train them abroad is a prerequisite.
2. To provide for General Practitioners or Family Physicians, and also derive the benefits of different systems of medicine, graduate course leading to Masters in Family Medicine should be started to provide primary medical and health care to the people.
3. It is essential to make health services/systems research as an integral part of health services management. The problem is not the lack of knowledge and technology, but failure to application. At least 50 per cent of research funds should be reserved for this purpose and placed at the disposal of the Health Directorates and PRIs directly.
4. Disease surveillance will never be successful in isolation. The entire epidemiological services should be adequately strengthened. Secondly, it will also be meaningless, unless the public health system is strong enough to take corrective measures in time, and is in a state of preparedness. The system should start from the grassroots where the events begin, recognized and prevented and controlled.

5. Ayurveda should not be equated to herbal medicine. It is science of prolongation of life. Yoga and positive aspects are the need of the day and not medicines. All systems of medicine have their own strengths & weak-nesses. The systems may be complementary. We should develop single window approach and Masters on Family Medicine will serve the purpose,

6. I would prefer to go through the final plan at draft stage. This will make it possible to have a look at it as a whole and integrate it rather than have fractional consideration.

### Comments on Reports of the Working Groups -

#### A. Report of Working Group on Communicable Diseases:

1. Recommendation to be accepted: "To review and revise the draft Model Public Health Act (1955) which was updated and circulated in 1987." No State has even responded. The work of review and revision of this important Act should be expeditiously initiated. Once the Act is passed by Parliament, ratification of the Act should be made mandatory to the State Governments as a prerequisite to qualify for the allocation of funding for health under the 10<sup>th</sup> Five-Year-Plan.
2. Disease burden as quantified by DALY by cause for the year 1999, should be accepted as a major criterion for prioritization. Relevant data in the report are: (a) About 41 per cent of total disease burden is due to the communicable diseases alone. and (b) Major contributors to the DALY are: (i) Respiratory infections, other than tuberculosis – 7.9. (ii) Tuberculosis – 6.9. (iii) Diarrhoeas – 6.7. and (iv) Malaria – 2.4. This adds to 23.9, i.e., little over 50 per cent of the total burden of communicable diseases.
3. In view of this analysis, at least 75 per cent of the financial allocation for communicable diseases should be earmarked exclusively for the control and prevention of these four very high priority diseases, viz. acute respiratory infections, Tuberculosis, Diarrhoeas and Malaria. Monograph on the Control of Communicable Diseases, has been circulated by the Independent Commission on Health in India. This should be considered as a major strategy document for planning programmes for the control and prevention of communicable diseases. Existing programmes should be reviewed & modified appropriately. Programmes should be comprehensive, integrated and decentralized. Of the



balance of 25 per cent of the funds allocated, at least half of the amount should be provided for formal post-graduate education in epidemiology and establishment of efficient epidemiological services starting from the PHC to district level.

4. As a policy for the 10<sup>th</sup> Plan, the Central share for the control of communicable diseases should be 50 per cent only and the rest should be matched by the State Government. This is essential to ensure feeling of ownership and encouraging initiative to meet the local requirements. Further, the States will be eligible for Central grant only on conditions: (a) ratification and endorsement of the Model Public Health Act as and when passed by the Parliament, (b) following the strategies provided by the ICHI's Monograph on the Control of Communicable Diseases, (c) dismantling the vertical programmes for the control of diseases and adopting integrated approach, and (d) appointment of a formally qualified and experienced officer as State Epidemiologist with necessary supports.

5. A special grant to the extent of 20 per cent may be considered as incentive for the States for their excellence in the impact of control programme. Preset criteria should be established for this purpose. Similarly, special funds should be provided for poorly performing bottom States, for the purpose of improving management of preventive interventions, full utilization of the available funds, and obtaining desired impact. In case of failure to perform the grant should be recovered.

6. The current fashion of routing the central/foreign funds through the so-called State and District Societies (?NGOs), should be discontinued. Creating another layer (barrier) is not a solution to improve functioning of the Finance Departments and Ministries. In stead, the fund should go directly the level it is meant for, e.g., to the State Health Department, Zilla Parishad, Panchayat Samiti, Panchayat and Gram Sabha. A good financial consultant can provide suitable system, if there is will of Government.

7. Basic cause of communicable disease is poverty. No epidemiological risk factor is as strong as poverty. It is determinant of why you die, when you die and where you die. In light of this, the 10<sup>th</sup> Plan strategies and provisions for all the developmental sectors Ministries and Departments, should address this very primary concern that the nation faces. Such improvements will surely have trans-sectoral benefits and impact.

8. Responsibility of the primary health care delivery has been transferred to the PRIs under the Constitutional amendments. This should be given immediate effect, especially at the grass root level of villages, without any reservations. Empower-

ment, capacity building, technical support, referral services, etc., required for this purpose should be provided by the State Health Directorates and other concerned Departments. There should be no administrative interference by the State and Central Governments in day to day management issues. For the control of diseases, the State should help and ensure that (a) Information and data are regularly collected and recorded on daily basis. Such information and data should be regularly compiled and used in day-to-day work by the health personnel, Gram Sabha and PRIs. and (b) In this way, the roots of disease control and surveillance system will be generated and grow. Regular compilation and critical analysis of these grass root data at district health set-up, will provide necessary epidemiological data for the State. District level should be geared for early recognition & confirmation of epidemic outbreaks, and instituting promptly appropriate containment measures. Briefly, Panchayati Raj should be the prime actor for control of communicable diseases. The Governments should play only the supportive role.

9. The State and Central organizational set-up for health has become out-dated and inefficient. It should be downsized and under-layered. Vertical structure for disease control should be dismantled.

10. Planning for the disease control should be from bottom-up. Originating from the Gram Sabha & Panchayat, developmental proposals should be compiled, integrated and coordinated upward into a District Plan/ Programme by the Zilla Parishads. States should evolve the State Plan/Programme strictly on the basis of incorporating the district needs, adding the State requirements. This is the only way of making the plan/programmes need-based, ensuring feeling of ownership, responsibility and community initiatives and active participation.

11. The 10<sup>th</sup> Plan should provide for remodeling and substantial strengthening of AIIH&PH, Kolkata. Similarly, NIHFW should be remodeled into a school or Institute of Public Health. Further, provision should be made for establishment of four more national Institutes of Public Health, appropriately located. This being highly technical and skilled task, it is essential to provide for nomination of an high power Commission of two to three experts in public health administration, education and practice, for this arduous job.

## **B. Report of Working Group on Environmental and Occupational Health :**

1. Report asserts that deteriorating environmental conditions contribute to poor health and poor quality of life, and hinder sustainable development.



- 2. Primary reasons of environmental degradation are: (a) population and poverty and (b) urbanization and industrialization. Thus, these are the basic issues that the 10<sup>th</sup> Plan should address.
- 3. The main hazards posed are: (a) lack of safe water supply and sanitation, (b) poor housing and shelter, (c) unsafe food and (d) high prevalence of disease vectors.
- 4. The results of these hazards are: (a) high incidence of communicable diseases (b) air and water pollution, (c) hazardous wastes, (d) unsafe use of chemicals and pesticides, (e) work place hazards and (f) traffic accidents.
- 5. The report quantifies the morbidity and mortality arising out of the environmental and occupational hazards. (a) The cause-specific DALYs for children under five years are – Diarrhoea - 85, ARI - 80 and chronic lung diseases - 5.9. (b) Seriousness of occupational hazards is reflected in India's heavy contribution to occupation related illnesses. The WHO estimates are given in Table 1.
- 6. The following recommendations should be provided for in the 10<sup>th</sup> plan :

- Creation of Environmental and Occupational Health Division in the reorganized set-up of the Ministry of Public Health.
- Establishment of a chain of five National Institutes of Environmental Health. These may be either integrated into or clubbed with the National Institutes of Public Health to be similarly established in different parts of the country. Functions such as research, man-power development, monitoring impacts of the intervention programmes, etc., should be assigned to these Institutions which may open units in the States or cities.
- Advocacy role of Health Departments and responsibilities of other Departments and Ministries for sustainable health development should be clearly spelt out in the Plan. The Ministries mentioned in the Report include: Environment and Forest, Urban Development, Rural Development, Labour, Information and Broadcasting, and Law and Justice.

**Table 1: Occupational Morbidity and Mortality -- India and World Comparison**

Item	Percentage Share of the World's Totals	
	India	Rest of World
Occupational Diseases		
Cases	32	68
Deaths	18	82
Occupational Injuries		
Non-fatal	37	63
Fatal	32	68

**C. Report of the working Group on Health Systems and Biomedical Research :**

- 1. This report basically conforms to the medical care rather than health care delivery issues. Unlike that of the report of the Working Group on Communicable Diseases, this report is based on the global data from Harvard School of Public Health, USA, on the future trends of disease burden. Data on page 20 of the report are misleading and not reliable. HIV morbidity (?) is stated as 8.4 million which is significantly higher than the estimates of NACO. As such these data are not relevant and cannot be considered as data-base for the 10<sup>th</sup> Plan.
- 2. Recommendations of the Working Group are based on the National Health Research Policy

which was formulated by the ICMR. However, the Plan should address the issues and mandates incorporated in the National Health Policy in vogue. Top priority to biomedical research and only lip service to the health systems research cannot be accepted. Health systems research is meant for ensuring application of available knowledge and technology for welfare, and health promotion and development. Further, it helps to improve performance of various services to the people. Sadly, this type of research has been neglected in the past. National essential agenda for research has to be health systems/services research which should form an integrated component of health services management and administration. While talking about health systems research in the



early part of the report, the proposed budget allocations make no provision at all for health systems research component. In consideration of this, 80 per cent of the funds allocated for research should be used exclusively for health systems research, and 20 per cent to be used for biomedical research. In this matter, it should be noted that for purposes of biomedical research, in the government system, we have two separate Departments of Biotechnology and of Science and Technology. Both these cover the bio-medical research.

3. The report recommends setting up new mechanisms in the form of National Health Research Management Forum, new Department of Medical Research and Education in Health Ministry, Central and States. This is not tenable when the mandate of the National Health and General Policy is for down-sizing and under-layering of the system. We cannot add more 'Tops' and enhance the existing ineffectiveness. Need is to down-size organizations such as ICMR. There is no justification, except empire building, for additional 2,981 new posts in ICMR which is over-staffed. It should be scaled down by reallocating existing staff and establishing independent State Health Research Councils, a task which ICMR has not undertaken despite the recommendation of its Review Committee.

4. The major function of ICMR is to promote research rather than doing it. Within about 20 per cent of the Plan funds for research, the following returns should be expected:

- To provide data-base for national health policy formulation and updating.
- To test new alternatives and innovative ideas which are successfully demonstrated by various voluntary organizations, and validate them for wider application and cost-benefits and cost-effectiveness.
- Strengthen health research manpower and management.
- Develop and strengthen operations research methodology.
- Basic biomedical research should be mission oriented and provide support and further the cause of the health systems research. This should be done jointly and in collaboration with the DBT and DST.

#### **D. Report of the working Group on Non-communicable Diseases :**

Rehabilitation & prevention of disabilities: In public health practice, this aspect of is called as fifth and the last level of prevention. This is necessarily an inter-sectoral activity, health

ministry playing only a limited role. Ministries of Social Welfare, Labour, Social Justice & Empowerment shall have to play their respective roles in the task of prevention of disabilities and rehabilitation by incorporating appropriate programmes and provisions under their sector plans. Health Division of Planning Commission should co-ordinate and inter-link programmes & ensure their comprehensiveness, synergism and effectiveness. The report provides a list on page 17. Instead of dealing these items in isolation, they should be incorporated as an integral component of the major programme, e.g., Leprosy Elimination Programme and Universal Immunization are covered under the control of communicable diseases; MCH goes under RCH Programme; Medical Rehabilitation as a component of medical care. Blindness control and Mental Health are covered under separate programmes. Action for Iodine Deficiency is a matter of inter-sectoral co-ordination. This item cannot be taken in isolation, and dropped as such.

National Programmes for the Control of Cancer, Cardio-vascular Diseases, Stroke, and Diabetes should be clubbed together as lifestyle diseases. Experience of the countries in Europe documents that heavy inputs of treating these diseases by expanding tertiary care services and secondary prevention through high-risk approach of dealing with factors such as high blood pressure, obesity and overweight, discouraging use of tobacco, etc., has resulted only in the reduction of mortality due to these diseases, but produced no effect on their occurrence or incidence. Emphasis is now given to comprehensive community-based primary preventive measures through inter-sectoral programmes influencing lifestyles. Taking lessons from this experience, the curative services for these diseases should be incorporated under secondary & tertiary medical services. The question of distribution of funds to be allocated for the primary, secondary and tertiary health care, has been considered in the revised draft National Health Policy. These proportions should be strictly adhered to.

Prevention of this group of lifestyle diseases is tough and long drawn endeavour. As mentioned earlier, attending the persons having one or more high-risk factors will not help, but it will be essential to launch community-based national preventive intervention programme. This calls for properly tested interventions, IEC techniques for behavioural change & well designed programmes. Five per cent of the total funds apportioned for the control of non-communicable diseases should be earmarked to initiate these activities.



Trauma and Accident Programme : The group proposes establishment of seven trauma centres in the country at the estimated cost of Rs. 105 crore. Purpose is to prevent deaths and disabilities due to accidents. Seven centres in a vast country, how-so-ever excellent and efficient they may be, can deal with only a fraction of persons who will need such a care. Cost-effectiveness of such centres will be very limited. We have over 350 district hospitals in the country and excluding the big ones which are attached to medical colleges as teaching hospitals, most of these hospitals are poorly staffed and equipped for casualty services. Instead, providing Rs. 50 lakhs for each 210 properly selected district hospitals, will bring benefits and save many more lives and disablement. Cost-effectiveness can be further enhanced, if the ill-equipped hospitals situated on important and busy crossings, and high traffic zones of the national and state highways are selected.

Mental Health Programme : This is O.K. except that at least 90 per cent of the funds for research should be placed at the disposal of the Mental Health Institutions and the State Health Research Council and 10 per cent for ICMR.

Oral Health Programme : The Working Group Report has not addressed two important deficiencies in this area of development. Dental services outreach and limited manpower. In view of this, the 10<sup>th</sup> Plan should provide for (a) a Dental Clinic to be established at each Community Health Centre one for about 1,00,000 population), and (b) establishment of more dental colleges for training Dental Surgeons, Dental Mechanics and Dental Nurses or Technicians.

Blindness Programme : There is no need to spend money on surveys. Action is needed because, even we consider cataract operations, performance is grossly inadequate and backlog is on the increase. It is, therefore, necessary to provide for an eye-cum-cataract clinic at every Community Health Centre (CHC). Since CHC has an operation theatre and nursing staff, all that is to be added are necessary equipment for eye surgery and honorary

or part-time ophthalmic surgeon. Secondly, the 10<sup>th</sup> Plan should provide for (a) training of optometrist and (b) inclusion of services for correction of defective vision (partial blindness) of the school children, by providing free or subsidized glasses.

Geriatric Care : Since a modified National Health Policy is being drafted, all other related policies such as the policy on older persons (1999) should be incorporated in it. This programme is also inter-sectoral. Department of Social Welfare, in its Plan should provide for Old Age Homes for the poor elderly who have no care takers. Health plan should provide for free medical care or insurance. Private sector should be encouraged for such provision for the economically better classes by way of tax relief, etc. All other Departments should play their role, e.g. free or reduced fares for services, reserved seats in all forms of public transportation, ramps in public buildings, and tourist and recreational places, fifty per cent discounts for meals, etc. Health Division of Planning Commission should take up coordinating and linking these provisions.

### **C. Reports on Rational use of drugs and Access to Medicines :**

This is an administrative matter and is easy provided Government is honest and means business. A simple way is to first follow its own list of Essential Drugs for its own purchases of medicines, including by its so-called autonomous organizations/institutions. Secondly, it is necessary to make obligatory to the retailer chemist shops all over the country, to keep adequate stocks of all the essential drugs notified by Government from time to time. These drugs should be sold strictly under their generic names, proper doses and prescribed MRP. Full information in this regard should be prominently exhibited by the shop keepers. People should be also informed the phone number and address of the local authority to whom complaint should be lodged, if any customer fails to get the drug, or drug required is not in stock, or the supply is not as per dose required or price charged is more than the MRP.

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Follow-up on 15-11-2001 with Dr. Prema Ramachandran, Advisor Health, Planning Commission, New Delhi, regarding the meeting of the Steering Committee on Health.



## 5. Situation Analysis for Working Group - 10th Five-Year-Plan

### 1. Existing scenario of health care in urban and rural areas:

- *Government, NGO and Private Sector* - There is no coordination and real partnership between the Government and voluntary organizations. It is not recognized that voluntary organizations play specific roles which are complimentary & supplementary, and not subordinate, to those of the Governmental agencies. Most of the illnesses in the community are treated privately. Tertiary health care requires facilities and inputs such as rapidly growing technology, high investment and running costs, specialized infrastructure and sophisticated equipment, highly trained and experienced experts and their supporting team, and all time demand on efficient management. Tertiary care institutions are being actively developed by the private and corporate sectors. It is best to leave tertiary health care to the private sector.
- *The Public Health System* - For several reasons, it is in moribund state. With high priority on family welfare programme, public health services are neglected. With pulse polio drive, immunization coverage under UPI has dropped significantly. WHO guidelines under the Calcutta Declaration and Agra Resolution of IPHA, will help in formulating corrective measures.
- *Pluralistic systems of medicine* - Role of respective system needs to be defined.
- *Implementation of major health and FW programmes through Primary, Secondary & Tertiary care system* - Primary care through Panchayati Raj Institutions, Secondary and Tertiary care through private, public and Govt. systems
- *Referral system* - a matter of effective dialogue between the lower and higher levels of case management, diagnostic or therapeutic.
- *Manpower requirement* - Many committees and report are available on this. However, we still are on training doctors and specialists (except for public health) with neglect of nursing, public health engineering, and paramedical staff. What is needed is to have health manpower development policy and special cells/units to direct and monitor training, facilities, quality, recruitment and deployment.
- *Utilization of facilities* - Low credibility due to apathy & indifference of staff, poor house-keeping resulting in uncleanness & untidiness, poor quality and non-functioning of equipment, inadequate supplies of essential items like drugs, non-availability of service when needed, etc. Concern

about the people, effective management and quality assurance.

- *Funding* - Prevent wasteful expenditure by insisting on cost-effectiveness, e.g. immunization v/s child mortality, HIV/AIDS v/s tuberculosis. Not surrendering grants. Setting priorities on epidemiological basis, user fees for all except poor.
- *HMIS and disease surveillance* - HMIS will not develop unless we insist on evidence-based actions and programme efficacy (we are talking about this for three decades or more. Surveillance has to begin from PRIs and not at top national level. Secondly unless the public health system is able to take quick and appropriate action on the warning and information provided through surveillance, we will be only wasting money and manpower. Our state of preparedness is invariably poor and we wake up only when maximum damage has taken place and the epidemic is on decline.

### 2. Modification in policies, priorities and programme during 10th Plan:

- *Priority areas of research* - Impact of introduction of Community Health Officer. Impact of Community Health Centre as proposed by the ICMR/ICSSR Expert Group Report. Up-scaling of Gadshirol intervention for reducing child mortality and many other Health Systems Research and other demonstration projects.
- *Mid-course corrections* - This will be possible only if all the current programmes and projects, including those with foreign funding, are objectively assessed, their impact & sustainability assured & cost-effectiveness established to the extent possible.
- *New initiatives* - These should be decided by a small group of expert health managers, those who are testing innovative ideas in field, and health services research experts.
- *Development of new strategies for improved performance* - This can and should become a part of activity under mid-term corrections and new initiatives.
- *Provision of services through primary and secondary health care system in an integrated fashion* - This cannot be done as it is against the very concept of primary health care. What is required is effective two-way referral mechanism between the two systems, the first is essentially basic health service at community level mostly run by grass-roots PRIs & people, and secondary health care is hospital services by clinical specialities.



- *Improved disease surveillance, HIMS, etc.* - moribund public health system is strengthened and primary health care programmes are fully decentralized under PRIs.  
This cannot be developed as lopsided programme.  
This will be automatically taken care of as
- 

First meeting of the Working Group, 23-2-2001, Nirman Bhavan, New Delhi



6. LIFESTYLE, FERTILITY AND POPULATION

**Prologue:** While delivering the 9<sup>th</sup> Veda Prakasha Oration, I am fully aware that the subject of ‘population control’ was cherished to late Shri. Veda Prakasha. Problems associated with rapid growth of population were recognized in India since independence. National programme for Family Planning was initiated from the First-Five-Year Plan. Unfortunately, the targets set were not fulfilled. The chain of change of the titles from family planning to family welfare to reproductive and child health and currently to Rural Health Mission has been without desired effect. In my paper entitled ‘Critical Appraisal of Failures of Public Health System in India’ which was presented at the WHO Regional Conference of Public Health in South-East Asia in the 21<sup>st</sup> Century, in November 1999, I have discussed several technical and management factors which were responsible for the shortcomings. Governments have not at all addressed these. In his review in the Indian Journal of Public Health Professor D. Banerjee

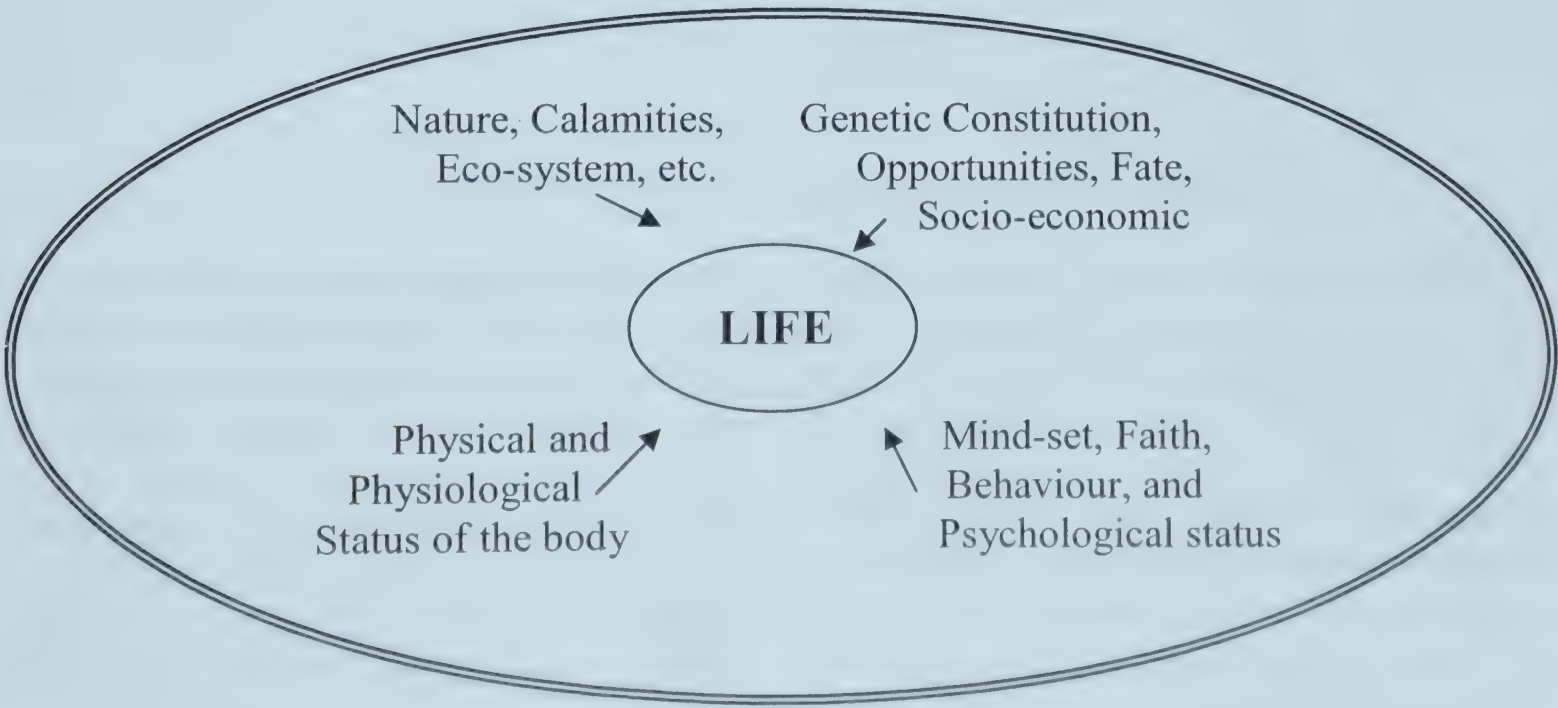
gives reasons and reports that “Asha” is likely to be “Nirasha”.

We already have population of about 1.3 billion. Size of our work- force is about the population of Europe. It is up to us to ensure that this large young population becomes an asset and not liability. Our priority has to make this potential and unique human resource economically productive. Apart from education and training, promoting healthy lifestyles will be necessary input.

With this need in mind, I have selected. ‘Lifestyle, Fertility & Population’ as the subject of my oration. I have deliberately provided details in this paper to facilitate drawing-up action plan.

**About Life:** Factors which shape life are shown in Diagram I. The proportion and extent to which these factors may affect life are subject to the magnitude and interplay of these and other unknown items.

Diagram I: Factors Influencing Life





**On Health:** Health has been accepted world-wide as one of the fundamental human rights. However, health cannot be given or distributed; it has to be acquired actively and sustained. To acquire, preserve and promote health individually and collectively, and know the ways of preventing and handling diseases satisfactorily, it is necessary to understand the basic facts about health and disease. Equipped with such knowledge and understanding, people can take care of their health, prevent disease and live happily.

As a matter-of-fact, health is a state characterized by physical fitness, ability to discharge various social and community duties; ability to deal with physical, biological and social stress; spirituality; a

feeling of well-being and contentment, and freedom from the risk of disease and untimely death. Everything in life influences health status of an individual and population.

Influence of mind on the body is considerable. Yet our knowledge of interplay between the body and mind, and spiritual being is very limited. Man's internal environment is constantly under the influence of the external forces of nature. Therefore, health status is dynamic and relative. If health status reaches to a positive level, little departure or laxity from the usual rules of health may not adversely affect or upset health. There is strong non-specific immunity or protection against ordinarily harmful things.

**Table 1:** *Things which are harmful to health*

1	Pathogenic micro-organisms
2	Vectors such as arthropods
3	Physical factors: injury, temperature or humidity
4	Chemicals
5	Domestic and industrial wastes
6	Pollution of all types, air, water, soil, noise
7	Stress of all kinds
8	Poor environmental sanitation
9	Poor personal hygiene
10	Mal nourishment
11	Life style that is not congenial

**Understanding Disease:** Disease limits life in its power, duration or happiness. Disease is caused when ecological or natural balance is lost. It results in physiological and/or psychological dysfunction of the body. Illness is a subjective state when is aware of not being well. Sickness, on the other hand, is a state of social dysfunction, i.e., a role that the individual assumes when ill. On many occasions, illness is mild and cannot be detected by available means of

investigation and diagnosis; as such it cannot be labeled as a particular disease. Specific diseases are generally diagnosed only when they produce significant changes in the internal environment of man with or without symptoms like pain, fever, weakness, etc. In chronic disease the physical, mental, economic and social effects of the disease adversely affect the individual and family. However, it is interesting to note that in many cases, the changes brought about by the disease

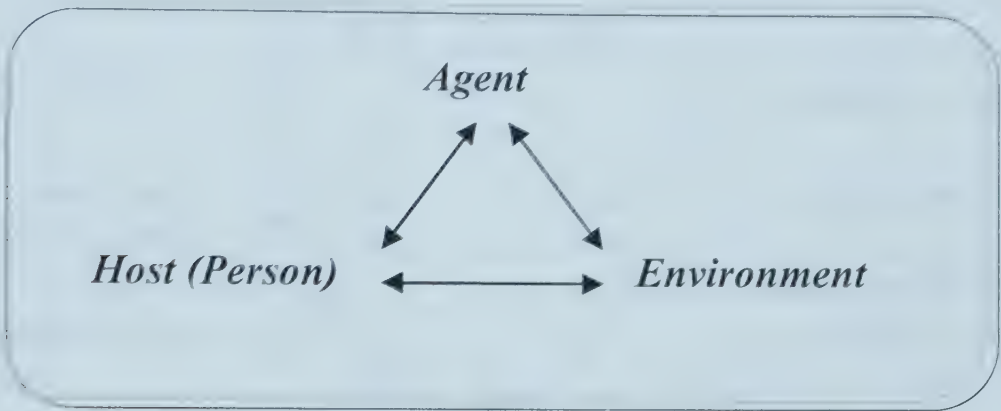


process are not enough to produce symptoms. Such a state of sub-clinical or minimal disease cannot be easily recognized. With the modern advances of medical sciences and technology, more and more diseases can now be diagnosed long before the disease has produced any noticeable effects on the person.

**Relevance for Action:** State of disease is

the effect of interactions between a person (Host), Environment and the harmful Agent. Epidemiological triad is shown in diagram I. Prevention of disease is inevitable for maintenance of health. Prevention is possible only by understanding and managing relevant aspects of the host, agent and environmental origin and causes of disease.

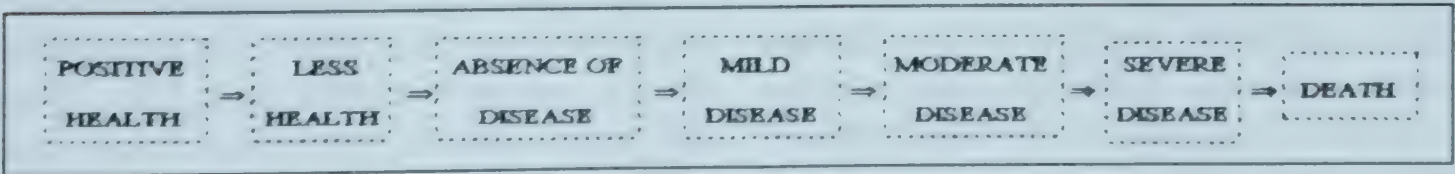
Diagram II: *Classical epidemiological triad*



**Body Defence Mechanisms:** The body is a self-regulatory, self-healing and self-cleansing wonder. We are all constantly exposed to the disease-producing factors, but only few catch the disease. Our lifestyle often makes our body susceptible. The positive mind, regularity and moderation protect the body through the central nervous, endocrine and immune systems.

**Health and disease:** They are not sharply demarcated, but imperceptibly merge into each other like the colours in the spectrum of light (Diagram II). In acute illness disease sets in quickly. In most cases, especially in chronic diseases, the change in the beginning is imperceptible and not noticed. The end of the spectrum is death and is clear, but the state of positive health is not so clearly demarcated.

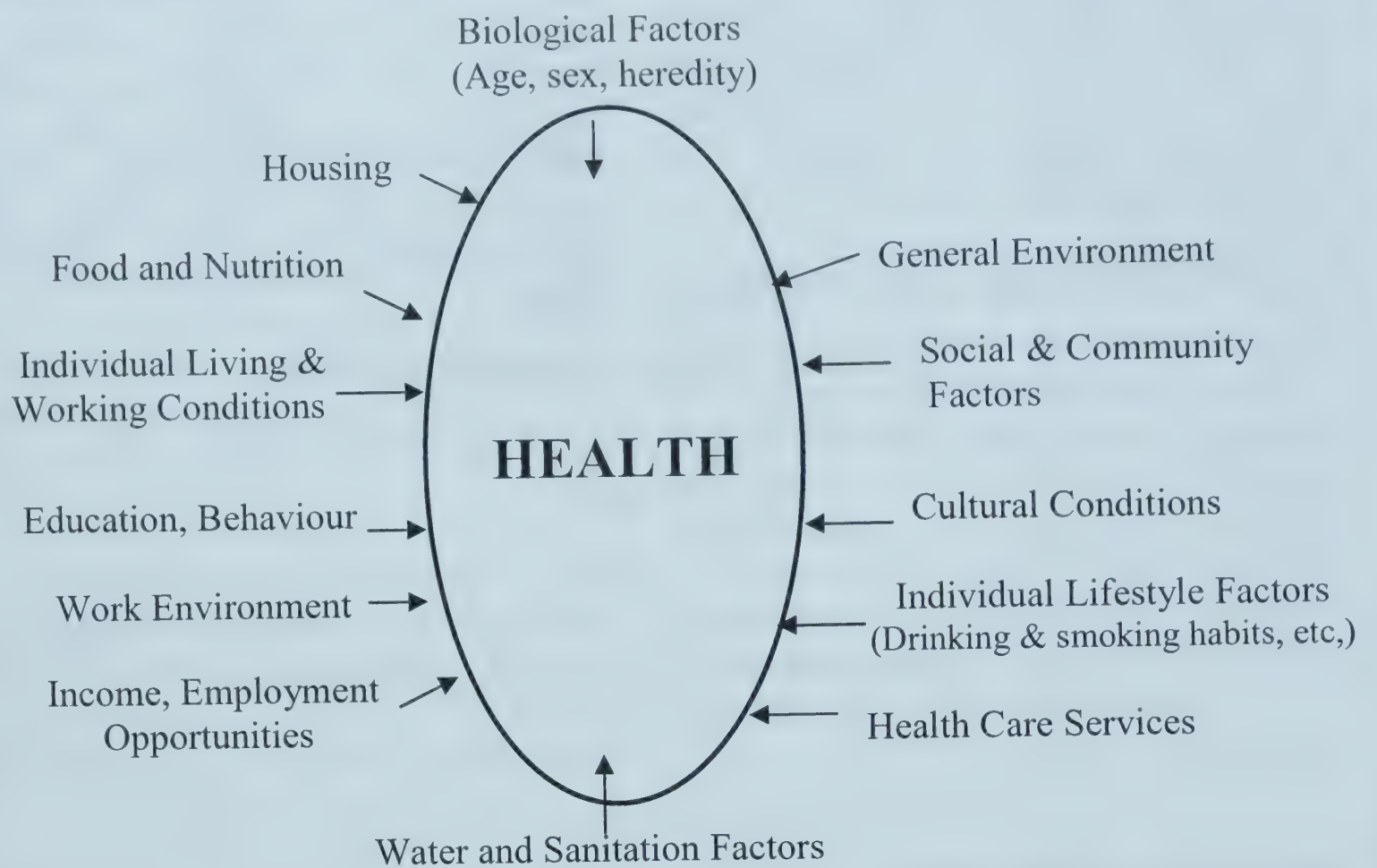
Diagram III: *Spectrum of Health and Disease*



**Determinants of Health:** Anything can eventually affect health in one way or another. But we shall consider here some important determinants that influence

health. These are (a) genetic make-up, (b) environment, (c) nutrition and (d) lifestyle (Diagram IV).



Diagram IV: *Determinants of Health*

Source: Health For The Millions: September/October 2000

**Genetic Constitution:** Genetic make-up determines the health status to a large extent. There are well recognized genetically determined structural and metabolic abnormalities that affect health. Even in apparently normal persons genetic constitution is an important factor determining reactions to stress. For example, whether or not tuberculosis and leprosy infections will result in clinical disease depends much on the genetic constitution. The same is probably true of mental stress and of exposure to non-bacterial hazards to health. Environmental factors are also important, but usually it is neither possible nor easy to disentangle them from the genetic ones. Environmental impact on the organism, if long enough, can get programmed into the

genetic knowledge of the body and influence the next generations.

Genetic disorders are caused in three ways. One group of disorders is congenital due to the chromosome abnormalities and not strictly inherited. Example of this is Down's syndrome or 'mongolism' in which there are three chromosomes of number 21 instead of two as in normal persons. This disease adversely affects intelligence and causes other congenital defects. If sex chromosomes are involved the child may become a dwarf (XO), or hermaphrodite (XXY). The second kind is due to single gene disorders which are inherited. This may involve dominant gene and produce multiple fingers. If recessive gene is



involved and associated with consanguineous marriage, metabolic diseases like (PKU) phenylketonuria develop. A defect in sex-linked gene gives rise to abnormalities like colour blindness or haemophilia. The third type of genetic disorder is due to complex interaction between the genes and the environment, as in diabetes or cardiac disorders. Multiple genes are often involved, each gene carrying a small effect.

We can do little to control genetic factors affecting health even when we know that the abnormality is caused by a single pair of recessive genes. Modern developments in genetic engineering may lead to some intervention. However, many traits depend on the interaction of several genes, and it is beyond our powers today to influence such inheritance in man. More and more heterozygotes carrying harmful recessive genes are being identified. For example, most carriers of the phenylketonuria gene can be detected by a phenylketonuria tolerance test. Many carrier females for haemophilia show abnormalities on special examinations of the blood. Other conditions which can be so detected include retinitis pigmentosa (a type of blindness), thalassaemia and sickle-cell anaemia. In such instances, if two persons carrying the same single harmful recessive gene marry, their offspring stands a one in four chance of inheriting the trait by acquiring a pair of such genes, and suffer from the disease. In case of sex-linked disorders, half of the sons of a carrier mother may suffer from the disease, and half her daughters may be the carriers. A population geneticist may be able to predict the risk more precisely in an individual case. Marriage counselling may help in preventing such situations. Secondly, genetic counselling is helpful if a child is born with a genetic abnormality.

The probability of subsequent children having a manifest or hidden genetic disease may be worked out by a geneticist or paediatrician.

Genotype of a person indicates the genetic potential of the individual, e.g., intelligence, body build, or natural resistance or susceptibility to disease. Phenotype is the expression of the genetic potential, either natural or by nurturing. This is often dependent on environmental factors, way of upbringing, lifestyle, etc. A child may fail to attain the potential height if undernourished, or grows in hilly terrain. Without education and training, and challenge and stimulus, we will fail to reach our intellectual potentiality. With high standards of sanitation and personal hygiene, our genetic potential to resist infection will have synergistic effect. But even when endowed with the genetic resistance, we may suffer from infection if drinking-water is highly contaminated. Other major determinants of health, unlike the genes, are amenable to control.

**Environment:** It plays an important role in determining the health status.

The term '*social well-being*' is not easy to understand. It is not dependent on social status. A person can be said to enjoy social well-being when he/she feels that he/she is discharging satisfactorily the various roles that man/woman has to play in the society. Thus, within your family you may be a husband or wife, a father or mother, and elder or younger sibling, etc.; outside the house you may have a circle of friends with whom you chat, play, etc.; and you have another type of working relationship with the boss, co-workers, clients, etc. If you feel that you are discharging your roles in the family, among friends, at work and at recreational



places satisfactorily, you are in the state of social well-being. Feeling of adequacy will depend upon your own beliefs, how you behave, and influence of others' attitudes towards you. Social well-being then depends on how a person "fits in" into

his social environment. Brain-mind interaction is very important. It depends on mental health and, which in turn, affects it. Obviously, it depends on physical health too, and is influenced by the factors that determine health generally.

**Table 2: Crucially favourable factors of the environment**

1	Safe, accessible, and adequate water supply
2	Sanitary disposal of excreta and all wastes
3	Healthy housing
4	Good climate
5	Home and occupation in pollution free surroundings
6	Socio-cultural, economic status
7	Behavioural and spiritual components
8	Political system, stability, security, etc.
9	Equity, Social justice, peace, etc.

**State of Nutrition:** This primarily depends on adequate and proper food supply, capacity to purchase food, what type and amount of food you buy, type of diet, eating habits, and good personal and food hygiene. Nutrition is a basic life support. Both undernutrition and overnutrition are injurious to health. Modern behavioural

patterns, food and eating habits, and changing ways of life tend to drift mankind from the nature and ecosystem generally.

**Healthy Lifestyle and Culture:** These are emerging as the vital factors influencing health status. What are the factors?

**Table 3: Lifestyle and cultural factors**

1	Regularity and moderation in daily routine
2	Behaviour
3	Occupation
4	Education and concern about health
5	Economic assets and security
6	Personal hygiene and healthy habits: regular use of toilet, washing hands before meals and after using toilet,
7	Plant-based diet rich in vegetables, fruits and pulses; regularity; moderation in food, drinks, etc.
8	Abstinence from alcohol, tobacco, drug addiction, etc.
9	Regular and adequate exercise, and activity
10	Coping with stress, contentment, recreation, etc.
11	Positive thinking; consideration and helpfulness towards other people
12	Diverse interests, knowledge or awareness of healthy practices, and so on.



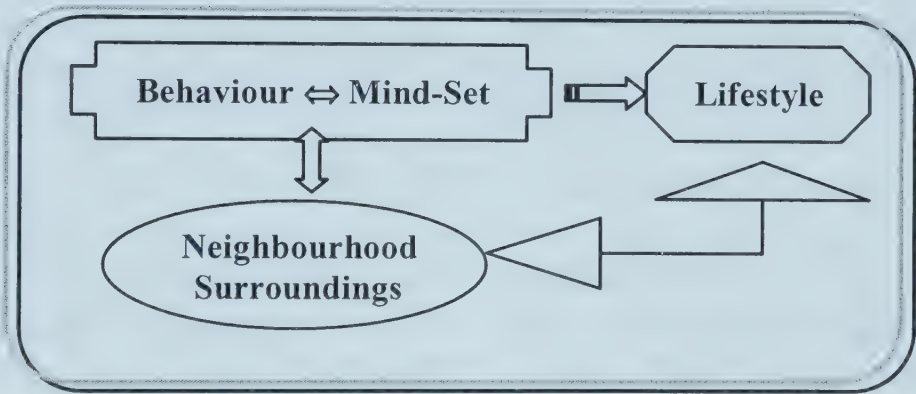
It is important to note that a community which observes simple hygienic rules is much healthier than the one which does not follow. Mere provision of free drugs, immunization services and sanitary conveniences may not benefit people, if these are used indifferently or not at all.

**Modification of Lifestyle for positive health:** The manner and method in which we spend each day of our life constitutes our *lifestyle* (*dinacharya* in Ayurveda). Ayurveda prescribes *dinacharya* or daily routine which will make the lifestyle healthy. All cannot follow a uniform lifestyle or way of living. The prescription has to be client specific and friendly. Professionals, businessmen, farmers, artisans, students, artists, politicians, sportsmen, tourists, skilled and unskilled

workers, etc., have to pursue different paths. Given healthful environment, if we are able to remodel and change our lifestyle, efforts towards health promotion will be smooth and productive. If lifestyles are to be changed for better health and happiness, it is necessary to understand different factors and situations which influence and fashion the ways in people start living. Let us probe into this issue.

Lifestyle is an effect of conditioning as a result of long term interaction between personal or group mind-set and behaviour in a given habitat, i.e., surroundings and neighbourhood. Diagram V depicts interplay between behaviour and mind-set vis-à-vis family/individual lifestyle.

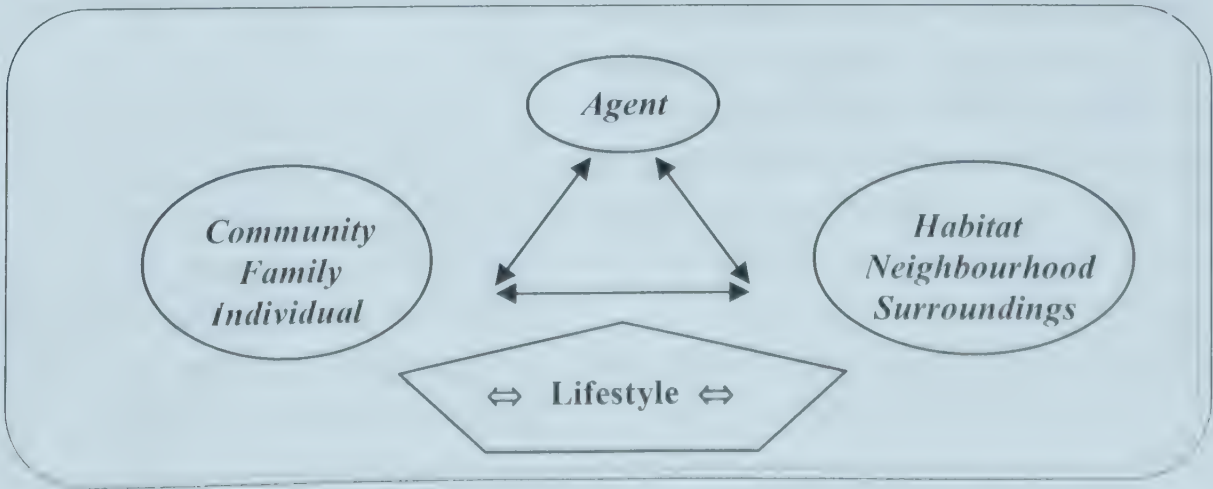
Diagram V: *Genesis of lifestyle*



Because of influence of the mind-set and behaviour on lifestyle, at the personal and family level, epidemiological triad gets more and more specific. Interactions between host, agent and environment

become complex events. It is here that the social, cultural, political, economic parameters come into operation. See Diagram VI.

Diagram VI: *Altered micro-level epidemiological triad*

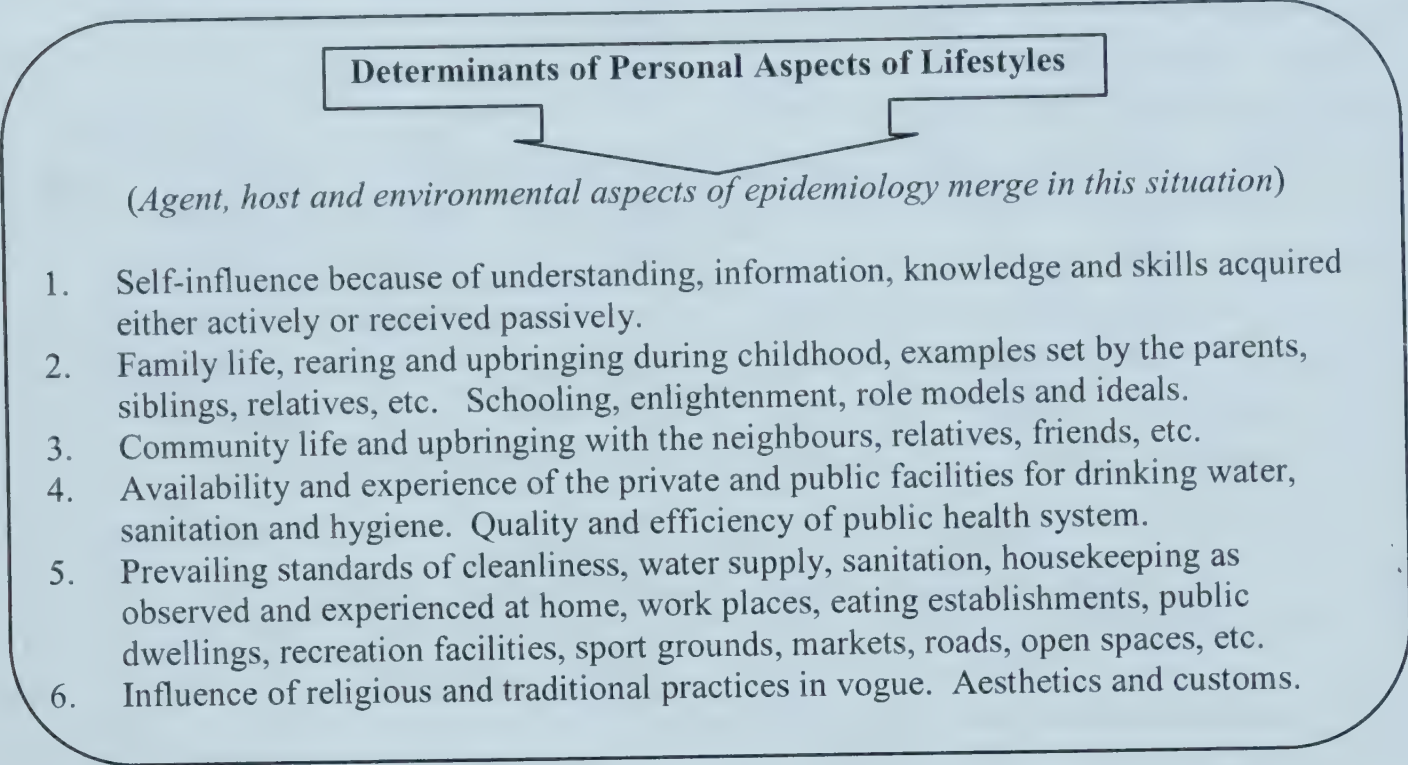




Out of these complex inter-relationships, and varying circumstances and situations under which human beings live, several lifestyle patterns emerge. Several factors such as age, sex, education, occupation, culture, religion, etc., contribute to the development of different

lifestyles. The nature and extent of the variations depend on the differential influence and weightages of different factors listed in Diagram VII. It is needless to reiterate that various macro-environmental factors also influence the lifestyles in their own ways.

**Diagram VII: Behavioural and mind-set factors determining lifestyle**



It is true that factors such as health consciousness, knowledge on health and disease, and willingness to take steps to prevent diseases or become healthier, do change behaviour. A good example is the increasing use of bottled mineral water for drinking while on travel or eating out in order to prevent alimentary infections or stomach upset. Health behaviour is monitored and modified by the mind. A family or an individual who is health conscious may use a particular health facility or follow a specific hygienic practice. However, this does not guarantee that they will necessarily do what they did in the past or continue to behave consistently or use available facilities.

Many incidences of disease or ailment, occurrence or absence, are due to

the differences in the micro-ecosystems which influence human behaviour and lifestyles. Improvement in public health will certainly prevent infectious diseases in some families. Unfortunately, this may not be universal for all persons and families. The problems of equity and social injustice remain unsettled. Therefore, finding out the lifestyle factors of ill-health which are operating in a particular family or individual is important.

The corrective measures will have to be family and person specific and not bookish or customary or fragmentary. Secondly, such preventive and promotive measures should be effective in a given community settings and time. Generally, such measures cannot be universally



applicable, unless they are verified and evaluated for wider application.

**Globalization and Lifestyles:** Metaphoric shrinking of the world during the last century has started the process of globalization or 'equalization' effect. As regards health, our major concerns are food, clothing, housing, and additions such as for drugs, tobacco and alcohol.

Take the case of nutrition. On this planet man has settled and lived for hundreds of thousands of years in very diverse and dynamic habitats (environment is neither a satisfactory synonym nor description of the term habitat). During these long years, man was able to eat only locally available foods, and by trial and error, these foods were combined so as to evolve diets which provided the nutritional needs. On the North Pole there was no chance of eating (even seeing) green vegetables, how come the Eskimos maintained good health! Physiological adjustments were made. The metabolic pathways were tuned to digest these local foods (diets) either by modifications or closing some or opening others. Manufacture of vitamins by the flora of intestinal microorganisms is well known. The fact remains. We have a plethora of foods and diets, such Indian, Chinese, Japanese, American, European, and African. Within these broad groups there are more specific entities, e.g., in India we have entirely different foods and diets in Maharashtra, Gujarat, Punjab, Tamil Nadu Bengal, and else where. With globalization, all kinds of foods are available at door steps. With affluence, eating such foreign foods has not only become fashionable and common, but also a status symbol. Our gastrointestinal system and metabolic processes are conditioned for traditional diets (those

eaten by our forefathers), and it stands to reason that entirely new diet will disturb digestion. (Eating foreign foods is as unwise as running a petrol engine with diesel.) Adverse effects such as indigestion, obesity, etc., are obvious. Corrective measures are also being introduced. It is now common that the travel agents are now providing usual local foods to the tourists who visit abroad. Most of the migrants stick to their traditional foods even for generations. Whatever said about food applies well for the housing and clothing.

With globalization, there is also cultural and spiritual pollution. Value systems are often conflicting. Commercial interests have resulted in some developed countries dumping their dangerous wastes which are hazardous to health, in the poor countries. The products such as tobacco products are exported and promoted in the developing and poor countries, when such products are either banned or their use restricted in the country of origin. People use neck-tie during tropical summer even if they are uncomfortable. These borrowed manners and fashions may prove harmful to health. However, this is very simple analysis and views of the changes. The trans-cultural interaction of over couple of centuries as a result of trade, political invasions and religious aggressions, still continues even after the post-world war II era of political independence of the colonial States World over. The Eastern lifestyles are undoubtedly and undesirably getting influenced by the Western lifestyles. The changes are often subtle nonetheless many, mostly the so-called educated, tend to copy the West blindly.

Science and technology also influence lifestyle. They are expected to



bring comfort to man and not evils of pollution, damage and degradation of environment, and ecological imbalance. The intention of raising the topic of globalization is not to go into the remedial measures, but to stress its significance. Nevertheless, human concern should be to retain and promote human values and spirituality while endeavoring for happiness and socio-economic development. Reverence for nature and respect to traditions are indispensable. Lifestyle can be neither anti-nature nor unnatural, because it will be anti-health. Very few individuals can withstand this general onslaught. Entire society should be proactive in this regard. The need of the day is to promote green lifestyles as most of Bharatiya villagers live. Movement for adopting green lifestyles is taking roots in the Europe. As regards the lifestyle, most of the urban dwellers in India are 'Indians' and not 'Bharatiya'.

**Way to Healthy Lifestyles:** How to go about making lifestyle healthier? What are the guidelines a person should pursue for daily routine activities that are easy to follow, keeping in mind personal compulsions, limitations and requirements with an objective to acquire and maintain personal and community health. As pointed out earlier, lifestyles vary from person to person and in the same person at different times and places. Flexibility is indispensable. In order to plan and lead healthy daily routine, one has to study, empower oneself and learn to critically look at one's behaviour and activities in regard to the following items; and modify these, in a self determined manner, and endeavour to move towards better health and prevention of illness as and when necessary. This is a difficult exercise. What is required is to transfer of appropriate information, bring about

changes in the mind-set and amend behaviour. This should be the function of the formal education system, electronic media, journalism, setting role models, NGOs and counselling services. The following items are to be attended to:

**1. Regularity:** Regular daily routine keeps our spirits up and makes us feel fresh. Regularity tunes our daily routines and habits to the bodily cycles and rhythmicity. Daily routines, like meal, defaecation, sleep, rest, work, etc., prevent imbalance within a system. In the alimentary system, if intake of food is regular, processes of digestion, assimilation and elimination are synchronized. All hygienic practices are to be followed regularly. Without some kind of regularity and rhythm, music cannot be enjoyed, so also health.

**2. Moderation** is the golden rule of health and has to be followed scrupulously. This holds true for food, rest, work or recreation. Over-doing or over-acting or over-indulgence can be harmful; a middle path and avoidance of extremes has been advocated even in Indian scriptures which advise *ati sarvatra varjayet* (discard excesses everywhere). In the case of nutrition, it is ideal to eat little of every food but more of nothing.

**3. Personal hygiene** and cleanliness form the basis of healthy behaviour and the backbone of lifestyle. Personal hygiene should neither confused nor equated with personal cleanliness. Cleanliness is certainly a part of personal hygiene, but the scope of personal hygiene is much wider. It is the science and art of preserving and promoting health primarily through the active efforts which are within the scope of an individual. It is practised through inculcating sanitary habits and healthy way of life. It is an efficient tool in our own



hands to attain good personal health. If an individual is constitutionally strong enough, and is well disciplined in regularly observing good personal hygiene, he/she can neutralize the adverse effects of the offending agents and the unfavourable environment. The following factors constitute personal hygiene.

(a) Knowledge of health and disease: It is necessary to have fundamental knowledge about health and techniques of acquiring it. Similarly, one must understand about disease, how one suffers from it and how to prevent it. Greatest strength lies in knowledge which should be kept up-dated.

(b) Motivation: Sanskrit verse, “*Shubham karoti kalyanam, arogyam dhana-sampada*” (work for welfare, health and wealth) is often cited but not much practised. This is because intrinsically health is not valued. Importance of health is usually realized only when it is lost. Mere possession of knowledge is not enough for action. How many people have given up smoking cigarettes because it is known to cause cancer? All depends on how much importance we give to health, and to our attitude and concern towards health. Health is not the aim of life, but the means. Without health very little can be done. Happiness and efficient productivity are the fruits of good health. Excellent health is the key to success in life and all of us must acquire it. Since in everyday life many harmful influences threaten health, it is absolutely necessary to be vigilant and observe rules of personal hygiene. Active efforts are possible only if we value health and are well motivated to be healthy.

(c) Physical environment: Personal comfort is required for happy life and efficient work. It is productive, unless

abused. Physical environmental factors such as proper ventilation (air exchange), atmospheric temperature and humidity, adequate lighting, absence of noise, etc., play an important role in maintaining good health. Personal factors like keeping mouth and teeth clean, bathing, cleaning and change of clothing and foot-wear, and the social factors like satisfactory pecuniary condition, good occupational and working conditions, family life, and good and true social friends (in need), the state of mental health, etc., also influence personal comfort. Regular attention to these factors is necessary. We may not have full control over some of these factors. Yet, much can be done; there is no excuse for neglect.

The home and place of work should not be stuffy or overcrowded. Good ventilation means that there must be adequate circulation of air. The residence should be free from excessive heat, chill, undue draught, as well as bad smell. Lighting should be adequate for the activity undertaken, e. g., more light is necessary for close and delicate work like repair of wrist watch or for reading a telephone directory. Less light may be sufficient for work like carpentry or for walking or socializing with friends. Glare as well as excessive shadows and flickering light harm the eyes, and should be avoided. Clothes should be properly selected according to the season and the type of protection desired. Clothes should be white or lightly coloured, thin and loose in summer. Heavy, dark coloured and well-fitting clothes are more protective during winter. Aesthetically and from the point of clean habit, underclothes should be changed and washed regularly. The material should be easily washable and permit normal functioning of the skin. Foot-wear should be used and wisely



selected. Foot-wear should not be uncomfortable and should never be tight as to interfere with the free movements of the toes and feet. A little oversized shoe is better than an undersized shoe. Shoes and other foot-wear should be repaired; and changed when it is worn-out. Regular use of shoes not only protects the feet from mechanical injuries, but also to a certain extent from infections such as tetanus, warts, hook-worm, and from the danger of snake-bite.

(d) Personal cleanliness: Clean habits are basic requirement for good health. Our environment is full of harmful agents like the disease-causing germs. It is better to avoid contact with them. The hands should always be considered as contaminated (polluted with harmful germs). Besides taking bath daily and wearing clean clothes, developing good hygienic habits from early childhood is of prime importance. Washing feet or removing the shoes before entering the house; washing hands thoroughly with soap and water every time after going to toilet or latrine and before cooking, handling or eating food; cleaning teeth in the morning, after eating and again before going to bed; washing and periodically dressing hair; cutting the nails short and keeping them clean; are all examples of hygienic habits. Clean habits and use of soap will reduce the chance of getting some common infections and spreading them to others. Eyes also need special care. In the process of body growth and repair, billions of cells die daily. These are replaced by the new ones. The dead cells are to be removed from the body. Similarly, undigested and unabsorbed food, and the waste products of digestion, absorption and metabolism need to be eliminated. Body excretes these wastes and toxic substances through the bowels, urinary bladder, lungs

and skin. Cleanliness aids excretory function. Regularity of bowel evacuation every day is conducive for the preservation of health.

Cleanliness which is next to godliness is also a social responsibility and besides our house, we should help to keep the public places like roads, parks, offices, etc., clean and tidy. Smoking in public places, and burning refuse and garden wastes add to air pollution. Habits like indiscriminate spitting and throwing rubbish anywhere are detrimental to health. Defaecation by the roadside and in open ground, or urinating at places other than urinals and latrines are examples of anti-social behaviour. Every effort to change these bad habits and to encourage the use of sanitary latrines and urinals is worth the trouble. Acts like coughing and sneezing are likely to spread air-borne diseases such as tuberculosis and influenza. The risk should be reduced by holding a handkerchief in front of mouth and nose when coughing or sneezing.

Some common habits have definitely been proved to be harmful. The best examples are of smoking and chewing of tobacco, and excessive alcohol consumption. The scientific evidence against these harmful habits is so clear that we should stay away from these. Persons having these habits should give them up.

(e) Exercise and activity: Regular and moderate exercise tones up the various systems of the body and helps to maintain its physiological efficiency. It keeps us active and cheerful. In modern way of life there is less and less need of physical activity in daily routine. Sedentary life coupled with the intake of excessive food may lead to obesity, especially if there is a familial tendency towards it. More on this topic is covered later.



(f) Rest and recreation: Physical and mental relaxation is necessary to avoid fatigue and regain efficiency. An adult needs six to eight hours of sleep daily. Children require more sleep. Rest after physical and mental activity is refreshing. We should have varied interests in life. Hobbies, friends, picnics, vacations, meditation, play, laughter, etc., make life cheerful and helps to have peace of mind. Periodic change of activities during daytime is also beneficial.

(g) Immunization and prevention of infections: Everyone, especially children, should be protected from the common communicable diseases. Immunization against tetanus, diphtheria, whooping cough, poliomyelitis, typhoid fever, etc., is simple and effective. Old persons can be protected against respiratory infections. Immunization schedule should be followed scrupulously. In order to avoid infection, avoid taking children while visiting sick friends and relatives at home or in hospital. After visiting or attending to a person who is ill, especially if he/she is suffering from an infectious disease, it is wise to change clothes and to wash hands and other exposed parts of the body thoroughly.

(h) Medical care: All illnesses should be promptly attended to and adequately treated till cured. Self-care of minor ailments such as headache, loose motions, and injuries like trivial burns and small wounds, is possible. Everyone should be able to provide first-aid and home-nursing to others. Any defect in the body should be corrected soon after it is detected. Any physical deformities like squinting eye, carious teeth, etc., should be corrected. Many diseases can be effectively treated and cured if diagnosed at an early stage. Examples of such diseases are many, e. g., tuberculosis, diabetes, high blood pressure,

cancer of various parts of the body, etc. Periodical medical check-up, appropriate to age, is valuable in this respect.

In brief, there is no better tool than personal hygiene and care for attaining self-sufficiency and self-reliance in health acquisition and maintenance. It is a magic formula for health. We should, therefore, pay proper attention to various items indicated in this paper.

**4. Diet:** Good nutrition through proper diet is the foundation of good health. Diet should not only be adequate but also be balanced. Regularity in meal times is important. It is excellent habit not to take the same articles of food as a routine, but have as much variety in food as possible. Most food taboos, likes and dislikes, usually have no scientific basis. It is not safe to eat food that has been exposed to house-flies and dust, or handled badly, or poorly stored or otherwise suspected to be contaminated. Food should not be handled with bare hands. It should always be covered to prevent dust and flies contaminating it, and stored in a refrigerator. Cheaper foods are not necessarily less nutritious, e. g., green vegetables are cheaper, but still are of greater nutritional value than costlier vegetables like cauliflower and fruits. For good health, vegetarianism is positively superior to non-vegetarianism. Foods of animal origin increase the risk of development of cancer. Further to the risk of infection, fast and processed foods contain excess of salt, sugar, fat, and calories; all harmful to health. Overeating is harmful.

According to Dr Lester Breslow, a public health expert in the United States of America, obesity and physical inactivity are reminiscent of the ancient sins of



gluttony and sloth. Apart from maintaining good health, it is now established that with proper dietetic care one can prevent not only gastrointestinal infections, but also the non-communicable diseases like obesity, high blood pressure, coronary heart disease, diabetes and cancer. Moderate meals, eating home-made food, eating less fat and fried items, eating more green leafy vegetables and fruits, avoiding improperly stored or contaminated foods, eating less of non-vegetarian food, etc., are advisable. Experiments have shown that reduction in caloric intake results in significant increase in longevity of animals. Therefore, it may be better to maintain optimum weight, i.e., maintain weight a little less than normal and never overweigh.

**5. Activity and Exercise:** Physical activity is the essence of life: without it the body loses vigour and efficiency. Physical activity depends upon physiological, behavioural and psychological factors. Sedentary occupation and easy way of living are detrimental to health. Apart from the work, regular exercise should form an integral part of life. Exercise is a purposeful leisure time activity aimed to achieve fitness and good health. Every human being needs exercise. It is only in an exceptional condition like acute heart attack where complete bed rest is advised and that too for a short period of time. There are many ways of exercising the body, but all the limbs, abdomen, spine and the cardio-respiratory system need to be exerted for fitness and trained to function better. Exercise suitable for age, may take the mode of drill and gymnastics, or traditional twelve *Suryanamaskars* (a popular combination of yogic poses) with proper technique, swimming, and outdoor sports like *kabbadi* or *atyapatya*, tennis, football, etc. Exercise should be of moderate intensity and of 30 to 50 minutes

duration. A minimum of three days' exercise in a week is necessary. We can go for a good swim, join a gymnasium or health club. Sophisticated equipment may be necessary for training in acrobatics. Each exercise has its own advantages and limitations. We have to select those which suit to our requirements. Common difficulties or excuses for failure to take exercise are lack of time, bad climate, lack of space or privacy, ill-health, and associated generally imaginary risk. Good exercise is always refreshing and is a better motivating factor than mere health consciousness. Family members and friends who exercise regularly often act as role models.

The aim of exercise is fitness and health. Regular exercise will help us to shed unwanted weight, or to maintain normal weight. Exercise helps circulation of blood, improves breathing, and aids digestion of food. The movements of joints remain free and muscles are kept in proper tone. The mind is relaxed and sleep is sound. Sex life is better. Regular exercise will help us to cope with stress better. The shape of the body is maintained giving a youthful appearance. All these advantages of exercise come with regularity of exercise. Persons not taking sufficient exercise, have about two times the risk of coronary heart attack, compared to more active counterparts. Many infirmities and disabilities of old age appear to be the result of habitual inactivity rather than aging. The importance and benefits of taking regular exercise need to be stressed because there is a reduction in physical activity in the modern lifestyle affecting adults & adolescents.

The objectives of exercise are: (a) keep the body in good shape and gain strength, (b) retain efficiency of the heart



& lungs for cardio-respiratory fitness, (c) maintain suppleness, elasticity and balance, and (d) achieve endurance, i.e., stamina and capacity to work for long periods. These four aims can be achieved through a set of different exercises. For building muscle mass and strength, it is necessary to do exercises against resistance, e.g., gymnastics like *jor* or *baithak*, weightlifting, weight training, use of dumb-bells or springs, etc. For cardio-respiratory fitness, aerobic exercises which consist of free and quick movements of many joints are required. Aerobic means using air, i.e., utilizing oxygen by contraction of muscles. When muscle contracts, it needs energy which comes from glucose and oxygen. Blood from the arteries supplies oxygen and glucose to the muscles. Blood enters a muscle when the muscle is relaxed. When a muscle contracts, the blood vessels get squeezed and blood is expelled out of the muscle through the veins. Blood can now enter into the muscle only when it next relaxes. Were the muscle to remain contracted, fresh oxygen and glucose are not available. Muscle then uses glycogen and fat stored in the muscle. Energy is obtained without oxygen. This anaerobic activity is harmful to the body due to formation of toxic products like lactic acid and acetone during anaerobic muscle contraction. For aerobic activity, muscles must contract and relax alternately. This is achieved through brisk walking, running, swimming, playing, or doing calisthenics.

To be effective, the exercise must increase the pulse rate. Normal resting pulse rate is around 72 per minute for an adult. The maximum pulse (heart) rate is arrived at by formula:  $220 - \text{Age} = X$ . During exercise, it should reach at least to a level of X multiplied by  $2/3$ . This is the target pulse rate. Table 10.1 provides a ready reckoner. To illustrate, if a person is

64 years of age,  $220 - 64 = 156$ , and  $2/3$  of 156 is 104. So his exercise should be brisk enough to increase the pulse rate to 104 per minute. Such a pulse rate should last for at least for 11 minutes, minimum five days a week. Some experts recommend duration of 20-30 minutes for three days in a week. As a beginner, we should start with the low target. As we feel fit, increase the target, but never more than the high value in Table 4. Endurance is best acquired by undertaking slow muscular activities like a walk or swimming sustained over a long period of time. A combination of these four types of exercises is required to obtain benefit from exercise, e.g., *Suryanamaskars* and calisthenics, weight lifting and yoga, or swimming and games.

Brisk walking is the ideal leisure time activity in modern life. As an exercise, walking should be adequately brisk and aerobic. Brisk walking is neither fast nor racing, it is in between. It is a moderate and rhythmic exercise which increases the respiratory and heart rates. Walking is much safer aerobic exercise than jogging, dancing or other hectic activities since the force of impact on feet is much less in walking. It is inexpensive because no special facilities are required except a pair of socks and good quality walking shoes which are comfortable. Use of shoes prevents injury to the joints and muscles of the legs. Brisk walking helps us to (a) keep fit, (b) maintain weight, (c) improve tone, flexibility and strength of muscles, (d) reduce stress, (e) improve stamina, and (f) protect against diseases, as it helps to reduce blood cholesterol level, and prevents bones from becoming brittle in old age. However, exercise benefits of brisk walking come only if it is adequate, regular and consistent and life long. A minimum of 30 to 40 minutes of brisk walking for three to four km and three to four times a week, along with



recommended increase in the pulse rate are cardinal features for success. See Table 4.

It is said that walking makes for a long life. This is because walking not only promotes health, but also provides remedial measure for many illnesses.

These includes conditions such as back pain, joint pain, coronary heart disease, high blood pressure, pain before menstruation in young girls, respiratory problems, ailments of joints, varicose veins, rehabilitation of patients after heart attack, surgical operations, etc.

**Table 4: Target Pulse Rate on Exercise by Age**

Age (Yr.)	Target Pulse Rate per Minute		
	Low	Median	High
20	120	133	170
25	117	130	166
30	114	127	162
35	111	123	158
40	108	120	153
45	105	117	149
50	102	113	145
55	99	110	140
60	96	106	136
65	93	103	132
70	90	100	127
75	87	97	123
80	84	93	119

‘Yoga’ and ‘Exercise’ should be considered as the very basis for a good health. Yoga and exercise are independent topics, but they are complementary to each other and not a substitute for one another. Each plays a vital role. Yoga is that extraordinary, exemplary uniquely Indian technique which helps man to develop a deep awareness of self, of every vibration and pulsation within — at the body, mind and intellect levels, by virtue of which the internal and external forces can be mastered. The word ‘yoga’ is derived from the Sanskrit root *yuj* which means to join. The aim of yoga is to achieve a union between the individual spirits (*atman*) with the universal principal (*brahman*) at the level of consciousness. Even though there are many pathways of yoga, the ultimate aim is identical, i.e., the union of the

individual soul with the universal principal. This leads to a state of intense happiness.

**6. Positive attitude and thinking:** Training and development of mind are essential prerequisites to good health. Logical thinking and thinking of alternate solutions helps in choosing appropriate, effective and practical things to do. Value systems based upon positive attitudes and thinking. Quite often worry is non-productive. The best tonic for the mind is enduring curiosity about an ever-changing environment. Optimism strengthens our power.

**7. Occupation:** Without purposeful occupation, life is not worthwhile. Occupation depends on one’s likes and



dislikes, education and training, familial background, financial status, opportunities, entrepreneurship, etc. For good health, we should avoid stress, anxiety, hazards, and sedentary jobs, but compensate through appropriate measures like many and diverse interests and hobbies, exercise, yoga, etc. Work that one likes and enjoys is neither stressful nor tiring nor boring.

**8. Stress** is the result of inability to cope with a difficult situation or inability to find solutions to problems. Other cause is habitual or excessive worry. The human body is amazingly resilient and one can find ways to unburden or work the tension out of the body to begin a fresh and rejuvenated. Things often don't happen according to one's expectations and this causes stress and frustration. A change of activity, whether work, music or a hobby, helps in relaxation. The best way to get rid of stress is to train the body to face (such) a stressful situation. Insecurity is a cause of stress, and one has to try to do away with it. Resorting to tobacco, alcohol or addictive substances ('drugs') will not help. Engage in some honourable work, yoga, meditation, exercise, music, movie, drama, playing games, painting, hot-water bath, massage, laughing out things, going to club or party, meeting friends, holiday, touring, sightseeing, etc. These are some of the activities which can help to reduce tension.

Stress has both physical and psychological manifestations, e.g., high blood pressure, peptic ulcers, insomnia, gastrointestinal disorders, nervous breakdown, etc. There is no point in hankering for what cannot be or what is not. There should be no gap in a person's expectations and reality, and any shortfall should be accepted gracefully. We must be able to adjust to our environment, care

for people around us and develop interests which take us away from everyday living. We should be willing to face life squarely.

**9. Rest and Recreation:** Relaxation is necessary to avoid fatigue and regain efficiency. Rest and recreation are of many types and the choice differs with person, place and time. Available opportunities, economic condition, convenience of time, etc., are other factors that need attention.

**10. Basic Needs:** We should remember that contentment and happiness in life do not much depend on money, social position or material possessions. The basic emotional needs of man are: (a) love nurtured by sympathy, tenderness, helpfulness and tolerance, (b) companionship for prolonged isolation cannot be tolerated for long, (c) sense of belonging, and recognition or respect from the people around, (d) independence together with responsibility, (e) sense of achievement and creativeness, (f) faith which gives direction and purpose in life, (g) satisfactory sex-life and happy marriage, and lastly, (h) physical, emotional and material security. It is essential to balance physical, social and spiritual needs – the ultimate determinants of health, efficiency and happiness.

A long term study in California, USA, revealed seven big hazards in modern lifestyle. These include obesity, physical inactivity, smoking, excessive intake of alcohol, sleeping too much or too little, eating between meals, and skipping breakfast. In combination, these poor practices could double chance of dying prematurely. Further, even couple of these practices could lead to disablement within ten years or later as compared to persons with no more than two of these habits.



**Towards Healthier Lifestyles through Research:** With the foregoing information and background, how to go modify lifestyles? How to change the mindset and behaviour? Can such a change be sustained? What is the role of spirituality & human value system? Obviously there can neither be simple or single formula nor ready-made answers. Health System and Behavioural Research and the efforts to modify lifestyles should go hand-in-hand in the same manner R&D operates in the progressive industries. Epidemiology of lifestyle will be fascinating exercise.

Fortunately, in every society, there are persons and even communities who have developed and maintained healthy lifestyles despite adverse habitats and socio-economic conditions. This may be one of the ways to start. It is also possible to design more specific conceptual designs to work on. There are several lifestyle factors and items which are known to either promote or undermine personal or community health status. Even so, there is more of ignorance and vagueness than clarity and insight. Social scientists and communication experts should take up these and similar issues for study. Conceptual design for remodeling lifestyle to make it safer is given in Diagram VIII. This provides a new design for research.

To be pragmatic, the main paradox is the uncertainty about what constitutes lifestyle which can be considered as health wise optimum. We have two broad types of lifestyles: (a) of the affluent societies in America and Europe and (b) of the poor societies in Asia and Africa. Affluent society lives in a safer environment with much less health hazards than the people in poorer countries who live in much hostile situation and are exposed to the risk of diseases of poverty, insanitation and

infection. The lifestyle of the affluent people, however, makes them vulnerable to the ailments of cardiovascular system, diabetes, cancer, mental derangements, accidents, etc. Infants and young children with congenital or heredity defects are made to survive in the affluent societies, while such babies die their natural death to much respite to the poor. The traditional lifestyles have evolved naturally over thousand of years as a part of ecosystem of this planet. These are gradually but certainly drifting towards the affluence ways of life. Should we wait for the time to answer or heed for research to know in advance? These are then the challenges we have to accept for better health and happiness.

All this is not easy (see Diagram IX). Scientific advance, in itself, will not promote health so long as man has likes and dislikes, and activities which unavoidably expose him to hazard and worries. There are factors influencing a person's health, viz. genetics over which we have hardly any control. Environment can be less hostile with progressive improvement in the standard of living. Socioeconomic development will improve the quality of life of the people. Unfortunately, many of the traditions and customs have become rituals or meaningless routines. Hygienic principles behind these practices are lost. Indiscriminate spitting is largely due to the lack of aesthetic and civic sense, rather than a deliberate act to pollute environment or promote the spread of infection. Similarly, many people do not spit indiscriminately simply because they regard it as not stylish or sign of backwardness and not awareness of tuberculosis. These data are of great relevance to the expected behavioural reforms such as discouraging spitting



indiscriminately. Just telling people that the habit is unhygienic will have very little impact. Further, there no unequivocal evidence that ICE (Information, Communication and Education) drives have resulted in sustained change in the behaviour of the people.

Diagram VIII: Spin-off of host and environment exchanges and behaviour and mind-set

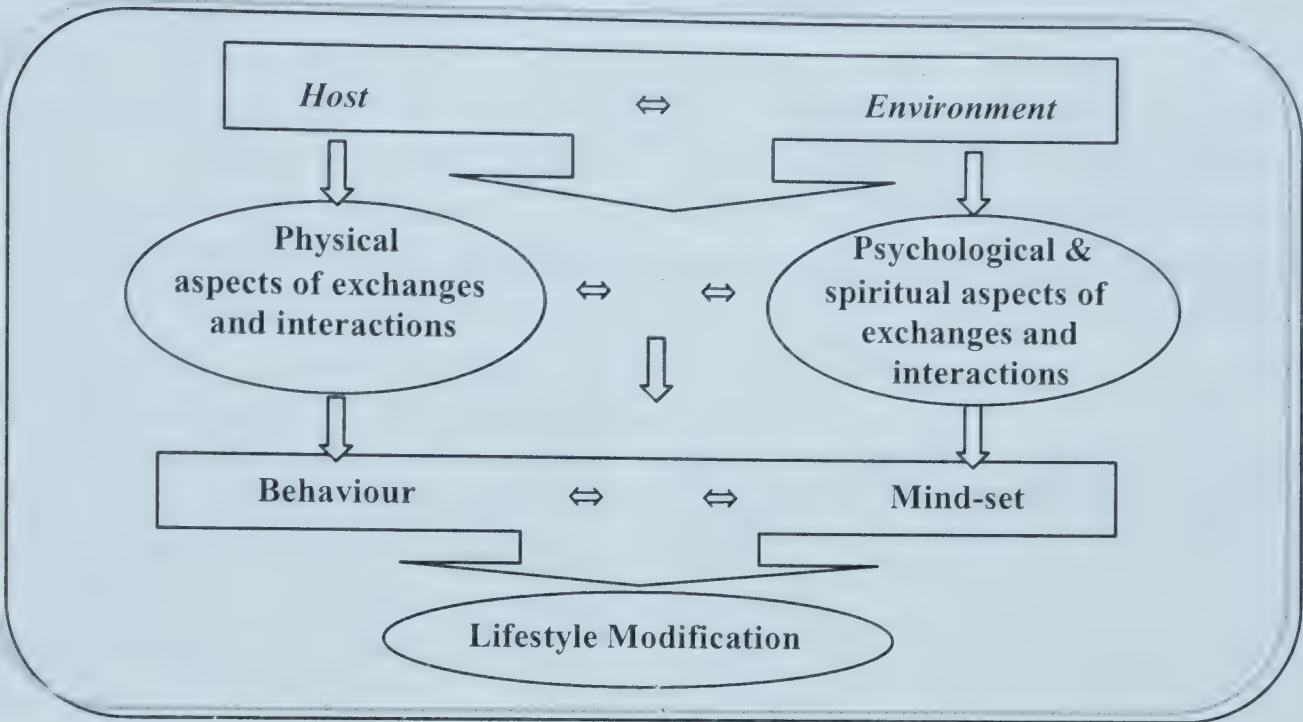
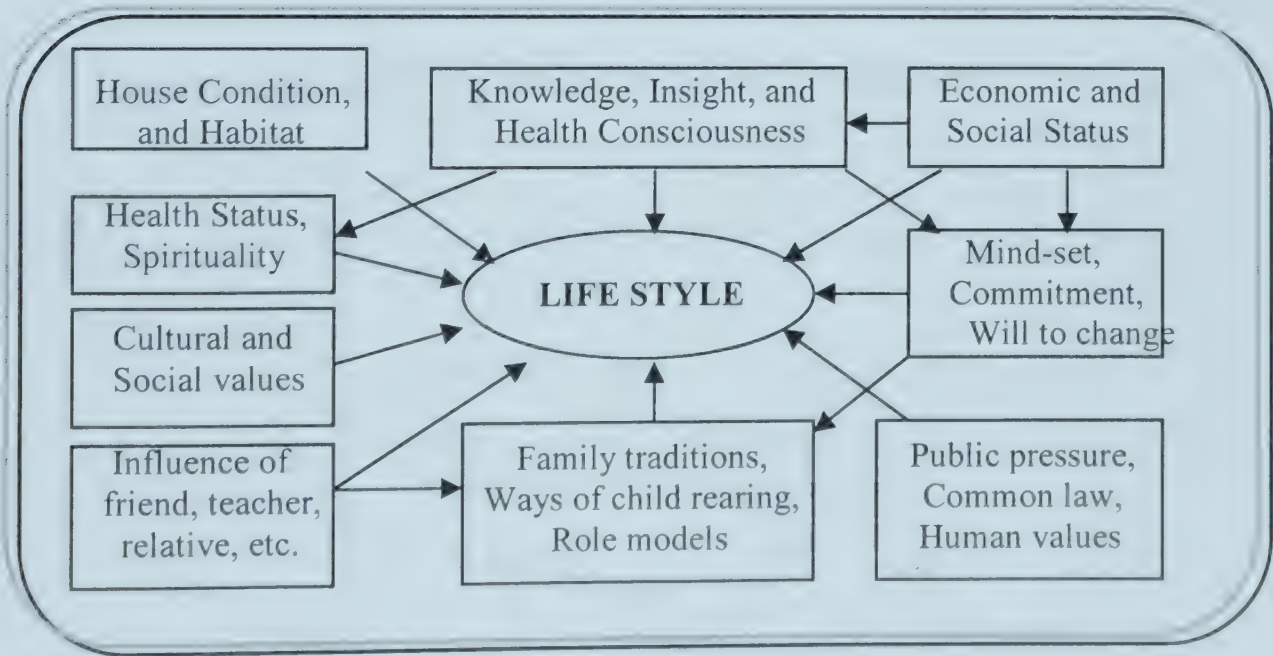


Diagram IX: Some Determinants of Behaviour and Lifestyle



**Note:** These determinants may be under: (a) common control of individual and family, (b) control of family and community, or (c) control of individual

**Epidemiology of Lifestyle & Health:** Epidemiological studies of different lifestyles may not provide immediate interventions, though it will provide necessary insight to the influences that help or mar the development of lifestyle patterns which are congenial for health promotion and disease prevention. Just



note the vast qualitative and other differences in the lifestyles of the youth and the aged; the richest and the poorest in any country, the village landlord and the peasant; minister and ordinary member/worker of a political party; top bureaucrat and a clerk; people in a true democratic country and those in dictatorial regime; the poor in USA and the counterpart in Bangala Desh; the grandparents and the grandchildren; and so on. Such studies will require trans-disciplinary teams of the experts and long term funding and support of the funding agencies.

**Ambiguity is real:** Complexity and possible diversity makes it a challenge in deciding what lifestyle is healthy. Equally problematic is the question of changing behaviour. If moderation is the strategy, man has to aim at the least of diseases of affluence and of poverty and live with it. Diagram X. One possible way is to rejuvenate the aim of ‘health for all’ through primary health care approach and with appropriate changes in life.

**Fertility:** Life is propagated through reproduction. Reproduction is controlled by fertility. Shorter the survival, higher is the fertility, e.g., as in microbes and rodents. Higher the survival, lower is the fertility, e.g., as in elephants and man. With the same law operating, fertility is high among the poor people and low in the elites. It should be realized that the poor do not plan to have more children because infant and child mortality is high. They just get children unplanned - naturally. By itself, reduction of infant mortality will not result in lower their fertility. MCH services do not address the socio-economic determinants of high mortality. It is well known that development is the best contraceptive. States like Kerala and Tamil Nadu have reached zero growth rate and more States are in the line. Healthy Lifestyles improve longevity and reduce fertility. Hence are superior and more efficacious than physical and chemical contraceptives. Population in some countries in Europe is declining.

**Diagram X: Relationship between Economic Status & Diseases**

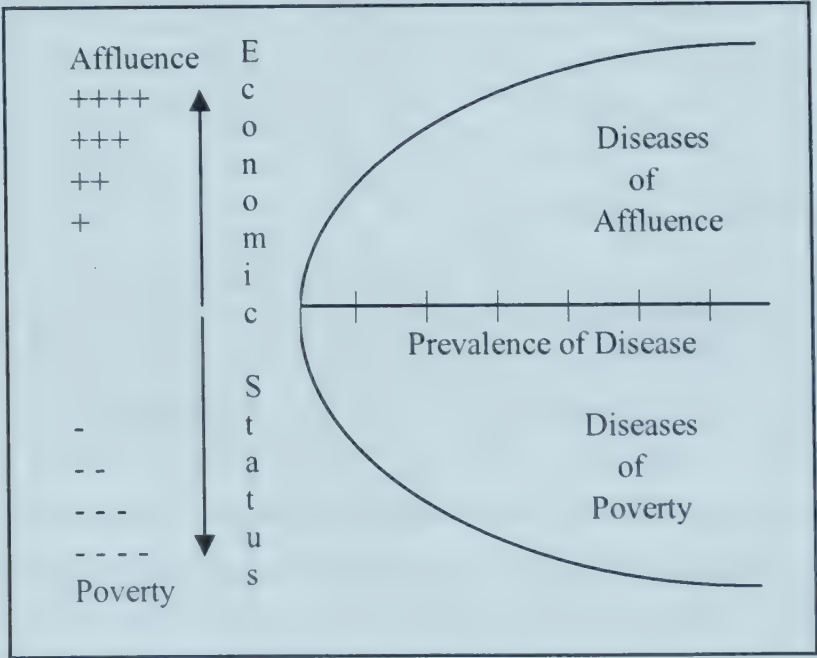
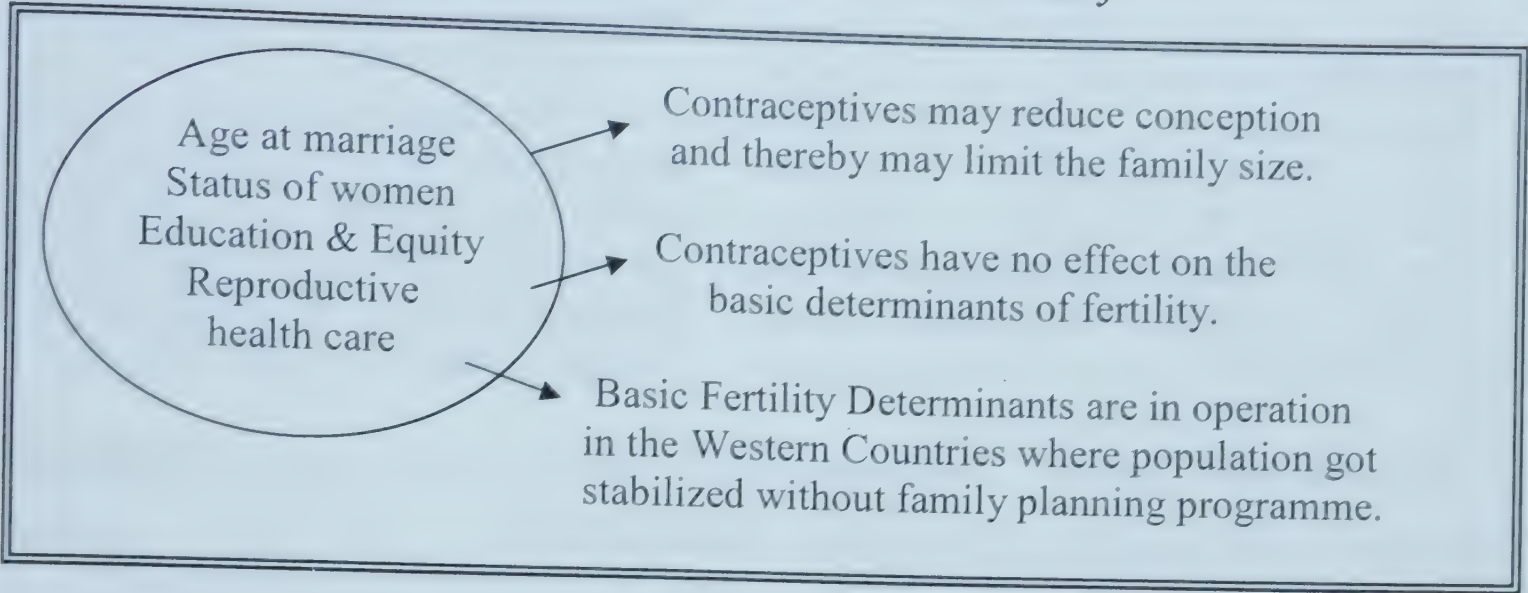




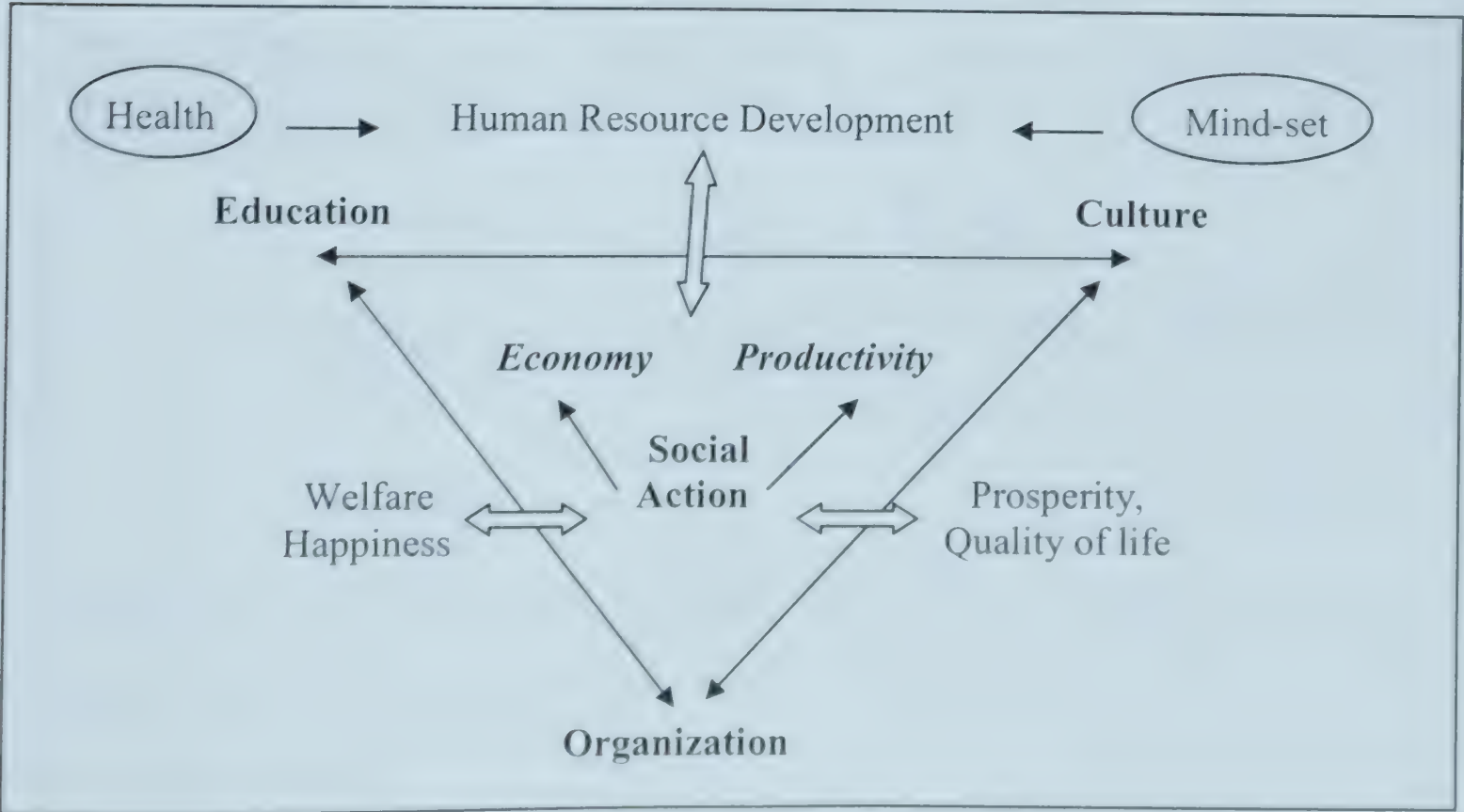
Diagram XI: *Contraception and Fertility*



**Correct Strategy:** It is necessary to change population policy. Move from old strategy of “Low survival  $\Rightarrow$  High fertility” to “High survival  $\Rightarrow$  Low fertility”. The current size of our prime population between 18 and 50 years is over half billion, larger than the entire population of Europe. This is our resource and big asset. We have to educate, train, and provide opportunities to make this population capable and economically productive.

**National Mission or Operation Healthy Lifestyles:** This invaluable human resource can be developed by widening the scope of Rural Health Mission to “Operation Healthy Lifestyles”. National Mission for Healthy Lifestyles should be initiated as inter-ministerial drive, to be coordinated and monitored by the Prime Ministers Office. With this in view, an approach to human resource development is shown in Diagram XII showing aspects of human resource development.

Diagram XII: *Human is the best resource*



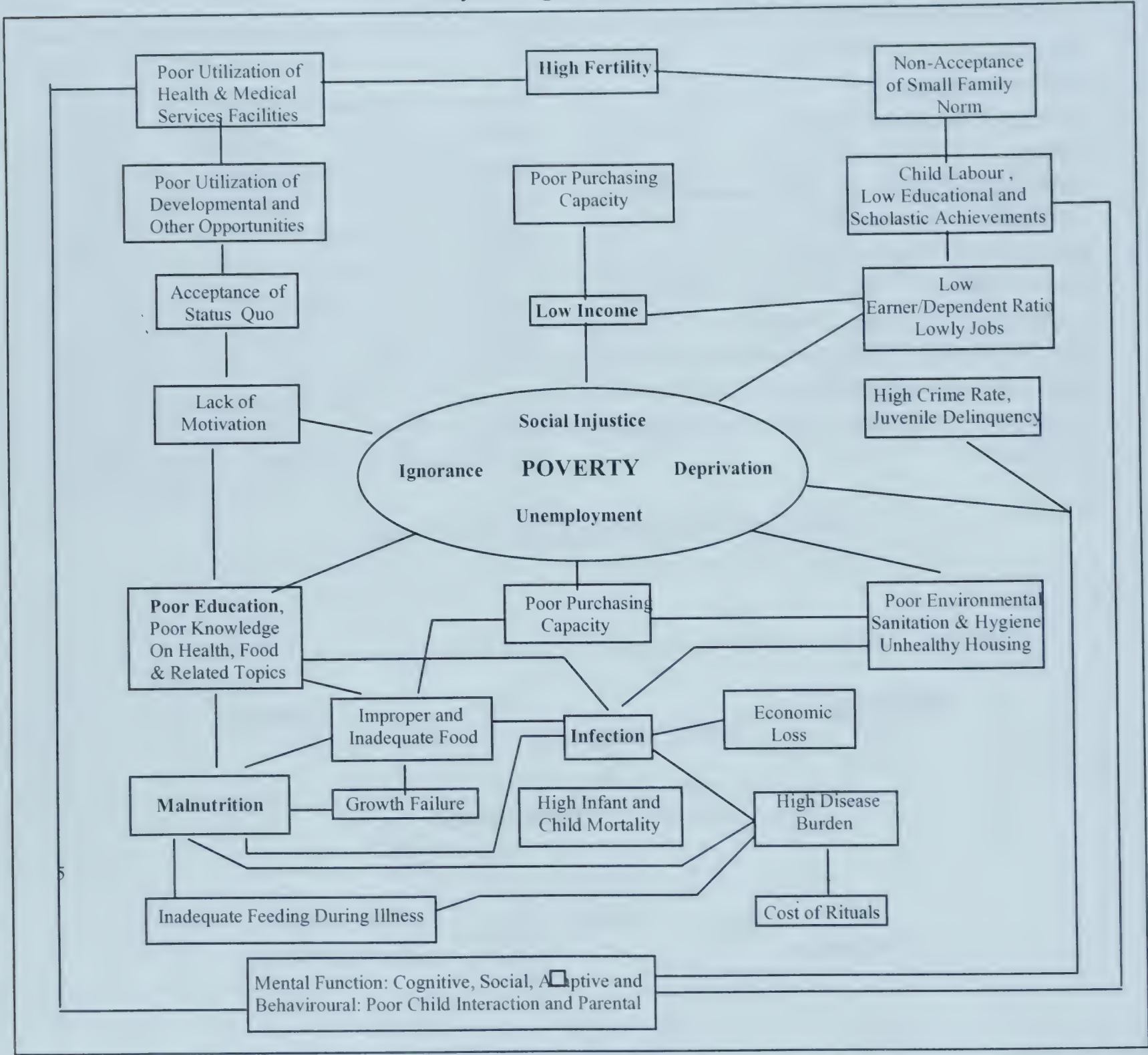


In this new programme to reduce fertility, priority should be given to alleviation of poverty and welfare of families below poverty line. All persons in these families should be reached, especially in 'Bimaru States' – U.P., Bihar, M.P. and Rajasthan, irrespective of their location and status. It is essential to note that poverty is both a cause and effect.

Alleviation activities should address all the factors that are shown in diagram XIII.

The prime population between 18 and 50 years, and the middle class families should be nurtured for rapid economic growth and prosperity. Thirdly, advocacy programme should be started for the elite families for adopting green lifestyles.

**Diagram XIII: Poverty – Environmental, Social, Economic, Health, Nutritional and Psychological Aspects**





**Wrapping up:** In about two decade population in India, with zero growth rate, will get stabilized, irrespective of what we do or failed to do. Further, it is reported that there is progressive decline of sperm count globally. Our big asset is young work- force which is about the size of population of Europe. It is imperative that we make this potential human resource

economically productive. Towards this aim, our top priority should for operation healthy lifestyles by initiating 'National Mission for Healthy Lifestyles'. This will lower fertility, population stabilization will be faster, people will be healthy and economically productive, and India could be one of the Top World Powers.

### Bibliography:

1. Deodhar, N.S., The Writings on Preventive Medicine and Public Health, Volume I and II, pp 1152, 2003, self-compilation and publication, Pune.
2. Deodhar, N.S., Sathe, P.V., Our Health in Our Hands, Ed. Deodhar, N.S., and Sathe, P.V., School of Health Sciences, University of Pune, pp 358, Jan. 2001.
3. Deodhar, N.S., Public Health: a Challenge Withered by Governmental Apathy and Social Neglect, Commissioned by Centre for Social Medicine and Community Health, School of Social Sciences, J.N. University, New Delhi, June 2003.
4. Deodhar, N.S., What went wrong with public health in India, Journal of Health and Population in Developing Countries, School of Public Health, University of North Carolina, USA, 3 (1): 91-98, Summer 2000.
5. Critical Appraisal of Failures of Public Health System in India, Address at The Regional Conference on Public Health in South-East Asia in the 21<sup>st</sup> Century, World Health Organization, SEARO, Hotel Taj Bengal, Calcutta, 22-24 Nov. 1999; Public Health in South-East Asia in 21<sup>st</sup> Century, Report and Recommendations of the Regional Conference, WHO, SEARO, New Delhi, March 2000, pp 37-39.
6. Deodhar, N.S., Saving Health from Poverty and from Affluence, Future – Development Prospective on Children, No. 2 UNICEF, New Delhi, 1982. Also Primary Health Care vis-à-vis Poverty, 26<sup>th</sup> Annual Conference of Indian Public Health Association, Jammu, 26-28 February 1982.

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The 9th Veda Prakasha Oration, National Institute of Health and Family Welfare, New Delhi – 110067, 3<sup>rd</sup> December, 2008, pp 38. Web Site: [www.nihfw.org](http://www.nihfw.org) (Presentation was in power-point format.)







# **PART M**

## **Finale**



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## Public Health Foundation of India (PHFI), Award & Citation

Internal and external evaluation by professional society at large helps and gives confidence to take higher risk in your endeavour. Although this has come towards the end of life, it is significant. The PHFI Distinguished Lifetime Contribution Award, 2008, provided for this. It's citation testifies:







**THE PHFI DISTINGUISHED LIFETIME CONTRIBUTION AWARD  
2008**

**RECOGNISING ABIDING COMMITMENT TO PUBLIC HEALTH EDUCATION IN INDIA**

***Dr. N. S. Deodhar***

*Focused and visionary researcher leading multi-disciplinary  
efforts in the areas of health sciences and health services*

*Exceptional leader in health sciences, health services, management and research*

*Devoted teacher and educationist for generations of public health teachers and researchers*

*K. Srinath Reddy*  
**K Srinath Reddy**

President

Public Health Foundation of India





## Health For All in India : Policies and Programmes, Extracts from Report of a Visit of Dr. John H. Bryant, USA

### D. All India Institute for Hygiene and Public Health, Calcutta, Dr. N.S. Deodhar, Director:

.... I visited the Institute and met with its senior faculty. Most notable was reference to the collaborative program in Training in Epidemiology being developed between the Institute and CDC under the Indo-U.S. Cooperative Program in Health. There is enthusiasm for the program including acceptance of the strong emphasis on field training, which contrasts with the heavy didacticism in the Institute's current program.

### The Bankura Project of West Bengal:

As part of the national interest in developing models of PHC, largely stimulated by Ramalingaswami, Deodhar and AIIHPH were asked to set up a model at the district level (1-2 million of population), with the objective of later handing it over to the State of West Bengal. In what I consider to be one of the key decisions in this field in India, Deodhar refused. His decision was based on the conviction that the State must be actively involved in the development of the new approach to PHC, must assume the responsibility, grapple with the problems and develop the solutions, otherwise it will not understand the changes that are necessary. Absorbing a new approach to health services is not like accepting the transfer of a new technology. This is a process, and it must be learned.

So, while refusing to have the Institute take the responsibility for the new program, Deodhar agreed to help the State to do it. These comments provide background for my visit to the senior officials of the Ministry of Health of the State of West Bengal.

Deodhar and I called on Dr. P.B. Chakraborty, Director of Health Services of the State of West Bengal, Dr. A.K. Dasgupta and Dr. Narayan Chowdry, the latter two being assigned to the planning and management of the Bankura Project.

The Bankura Project will involve developing a PHC program for a population of 2,374,000 people in Bankura District. They plan a six month period of assessment and planning, and then 3 to 5 years to get the program operational. Additional

staffing will be needed at the senior planning and management level, and the State has committed Rs. 120,000 annually to supporting a Coordinating Cell for that purpose. The Cell staff will consist of a Project Officer, Research Assistant and Secretary.

### Some Issues:

- There has been a decision at cabinet level in West Bengal to proceed with this program and to finance Coordinating Cells in each new district program on the same basis as that for Bankura. As the PHC programs progress in Bankura, they will extend the effort to other districts and use the Bankura sites for training.

- Involvement of communities is essential. The panchayats are integral to this effort. The Community Health Volunteers (CHV) do not answer to government but to the panchayats. Twenty-four thousand CHVs have been trained to date; the target is 40,000. West Bengal has 48,000 villages and a population of 60 million.

- In Bankura, they will try to learn the process of developing PHC systems on a large scale, including the appropriate organizational arrangements and linkages. The problems are enormous. To name but one, the continuous influx of a refugee population means there are never enough resources — doctors, equipment, beds. The development of effective services at the village level is a must.

### Dr. N.S Deodhar:

After several days of traveling and talking with Deodhar, I developed a strong respect for his experience, practical insights and wise ways of looking at health problems, particularly at the problems of developing effective PHC programs. Here are some of his observations:

- For dealing with many health problems, including communicable diseases, management is more important than technology.

- The highly heterogeneous populations of dense urban settings make it difficult for CHWs to function only on a part-time basis.

- When the State of West Bengal wanted to implement the PHC; program widely, I said no. If you implement it widely, you will be fighting fires in many places at all times. Keep it small and fight small fires. (This is not to say that Deodhar is not in favor of proceeding with large-scale implement-



tation; it is within that larger scale that he counsels caution.)

- (speaking of the growing dependency on modern medicine) To have blind faith in science is much more dangerous than to have blind faith in tradition and religion.
- In developing demonstration program in PHC, don't provide artificial efficiencies by putting in too many outside resources. I (Deodhar) might be the best person to develop a PHC program in West Bengal, but that would be artificial. Learn how to implement these ideas with the resources that will be actually available.
- The demonstration programs you have seen, such as that at Jamkhed, succeed not so much because of their content but because of their leadership. Clone the Aroles and India's PHC problems would be gone.
- Don't underestimate the existing strengths of our ongoing health care programs. Don't try to stop everything until the model is ready.
- Don't run a PHC/HFA effort as a vertical program. It must have a horizontal. Integrating effect.
- Decentralization is absolutely essential. There is so much diversity in India that no single model can meet local needs. Develop very broad guidelines, & then encourage diversity within them.
- (and, at another time) It is necessary to decentralize planning and programming. Let the Government of India develop very general guidelines for the States. The heavens won't fall down if a State doesn't pick up on it. Then decentralize at the State level. Let the decentralization be true decentralization, of power and resources.
- The Health Guide (HG, another term for the CHW) is necessary to ensure community participation. The Multi-Purpose Worker (MPW) is necessary to ensure the effectiveness of the HG, indeed is a prerequisite to Health Guide Scheme. Who will supervise the MPW? The CHO can do that.
- The chain of relationships, especially from the MPW to the HG to the community, is very important to transferring knowledge and understanding to the community, so that the people can become self-reliant. You don't want the community to become dependent on the HG.
- The small PHC demonstrations, the models, have made substantial contributions, but beyond a point, they will not be important. They will not be implemented, but will become or remain parallel systems. The key step is for the States to incorpo-

rate the concepts developed in the models into the State's own PHC programs.

- We need better mechanisms for sharing experiences, for transferring insights. That can be more important than transferring technology.
- There is too much information in PHC systems that is not used; health-related information then loses its significance. At least two kinds of information are required: that needed by the health worker on the spot for his/her work; and that needed by the higher levels for evaluation, planning and supervision. The information required for collection must be kept to a minimum.
- Health education channeled through health departments is of limited usefulness. It should be integrated with general education, spread broadly through educational programs, and not left to be strangled by health departments.
- There are serious problems with medical education. A university hospital is a most inappropriate place to train medical students for the problems in India. It should be used solely for training in specialty care.
- The recent reintroduction of the idea of "near doctors" in India deserves a brief history. Prior to independence, Licentiate Colleges gave an LCPS degree at the conclusion of three years of medical and surgical training following matriculation (10 years of elementary and secondary education). The MBBS was also given, but for five years of training after 12 years of preceding education. After independence, the licentiate training was abolished, and many of the licentiates were given the possibility of being upgraded to the MBBS.

Recently, with the failures of health care to reach larger number of people, several States have taken steps to bring back the licentiate, now spoken of as a PHC doctor. Maharashtra started a training program 2 years ago, but then closed it. Gujarat dropped it before it started. West Bengal is proceeding, & is now 2 to 3 years into the program. It is very troubled program. There is strong public and professional opposition; the students are on strike; there is uncertainty about what to call them; they are not to practice in urban areas; they cannot proceed into the MBBS programs.

A better solution (Deodhar speaking) would be to modify the nursing program by adding six months of training in diagnosis and treatment, encourage males to enter the profession, and the nurses, as nurses, fill the function of the PHC doctor. (Thailand has recently adopted this notion, and is training nurses to be nurse practitioners in the PHC setting. See Trip Report on Thailand).



Answer is not being found in more doctors. West Bengal has an excess of doctors, but there are 400 vacancies in the health services. One reason for the vacancies is that West Bengal does not have compulsory service as does Maharashtra.

- Progress in India since independence has been stupendous. We are not yet satisfied, but a look back over these decades is revealing. In Maharashtra State (Deodhar was Director of Health Services in that State and then Professor of Community Medicine in Poona before coming to Calcutta) *{few errors here}* at the time of independence, there were almost no roads and electricity in the rural areas. Now virtually every village has a good road, electricity and bus service.

#### **Commentary on Calcutta:**

My visit to Calcutta was too brief to allow detailed analysis of the Institute or of the PHC field programs. But Deodhar's insights are very important. Many of his ideas were born in the West of India, Maharashtra State, others in the East, in the State of West Bengal. His thesis — that the

State is where the next steps in PHC development, the transition from micro- to macro-systems, should take place — needs to be respected.

Of course, the risks of failure are higher under State control too; a turnover of leadership could lead to diminished interest of the State Ministry of Health; a shift in political winds could lead to loss of the long time support that is necessary to develop these systems and to promote their extension to other areas. The attractiveness of the autonomous model is that it is easier to control and less subject to shifts in key personnel and drifts in political interests. Of course, bad luck can strike the independent models as well, though perhaps less frequently.

But I expect that if Deodhar were with me as I write this, he would say, "But there will be a time when the change over from autonomous model to bureaucratically directed health services must be made, and there will always be those risks in the public sector. When the State is ready to take on the job, then that is the time to try it."

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Dr. John H. Brant, Health For All in India, Policies and Programs, Report of a Visit, Fogarty International Center, National Institutes of Health, Bethesda, USA, July 1982, pp 38-45. His visit was a part of assignment from Department of Health and Human Services, USA Government.







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